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Pneumonia and Its Management

THE TREATMENT OF BRONCHO-PNEUMONIA.

S. SOLIS-COHEN, M. D.,

CLINICAL PROFESSOR OF MEDICINE IN JEFFERSON MEDICAL COLLEGE.

Philadelphia.

The general management of patients with broncho-pneumonia is pretty much the same under all conditions, and for detailed statement of my methods I may refer to my chapter on Broncho-pneumonia, in Sajous's Analytic Cyclopedia of Practical Medicine, 7th edition, 1913, pages 675-694. Briefly repeating from this article, it may be said that in the acute form rest is necessary, and if the case be more than the mildest, rest in bed. Free ventilation is essential. The room temperature should be, in general, as near 60-65° F. as possible; but when the patient is feeble or aged, and in cases of capillary bronchitis in children, and often following measles or whooping cough, 80° F. is desirable. Hot, well-made flaxseed poultices applied over the affected area, or over the entire chest, front and back, if the process is widespread, are of great service. The jacket poultice should be covered with oiled silk. It should retain its heat about four hours so that more than three or four poultices will not be needed during the day-hours. At night, to avoid disturbing the patient's sleep, dry the skin, sponge with alcohol and alum, and put on a jacket of lamb's wool. If counter-irritation is necessary before poulticing, use a mild mustard plaster, made with the addition of glycerin and white of egg.

I do not use the ice bag in ordinary broncho-pneumonia, but in tuberculous cases, when the temperature exceeds 100 degrees, an ice bag or cold precordial applications are helpful. Sponging the entire body twice daily with tepid water and aromatics or alcohol, adds to the patient's comfort. Sometimes, in delicate children or in the aged and feeble, hot applications (even hot plunge baths for the children) are to be preferred. Antipyretic drugs should never be used. Food should be given as in fevers generally, every second or third hour, and should consist of easily assimilable and concentrated nutriment, pancreatized milk, junket, ice cream, custard, beef juices, albuminized barley water, soft boiled eggs, and the like. The patient should drink water freely, and it is well to give a mild alkaline diuretic. Treatment should begin with thorough cleansing of the bowel and any tendency to constipation should be overcome by castor oil, calomel, alkaline laxatives, glycerin suppositories or enemata. The mixed bacterins may soon be developed to a point of specificity. The serobacterins (Besredka's "sensitized vaccines," but using only *killed* organisms) are best. Quinin in large doses, especially double hydrochloride of quinin and urea injected intra-muscularly, is of great service. In tuberculous cases, and sometimes following measles and whooping cough, creosote carbonate is indicated. At the outset, in the aged, and in young children, strychnine in doses of 1-120 grain to 1-250 grain should be repeated at intervals of from one to six hours. When there is marked cardiac or respiratory debility, strychnine should be supplemented by atropin or camphor. For a young child 1-2000 grain of atropin hourly is a good dose and method. The ammonium preparations are used in nearly all cases. Opium should not be given, except to relieve pain or to quiet excessive, unproductive cough. In case of continued weakness of the heart, if sufficiently urgent, the hypodermic use of camphor, digalen, musk, cocain, epinephrin, pituitary preparations, caffein or strophanthus will be found useful.

If there be symptoms of suffocative catarrh present, an occasional emesis is of value, and syrup of ipecac, alum in syrup of ipecac or in honey, or, if these fail, apomorphin may be used. As recovery proceeds, the medication should be gradually withdrawn. When resolution is sluggish, ammonium iodid may be given in a vehicle containing pepsin, and followed by a large draught of water, or an injection of iodin in lanolin or vasogen or iothion in olive oil be used, or pulmonary bacterin (autogenous or stock) be injected. Mercurial ointment may sometimes be resorted to in extreme cases. In cases of urinary suppression or albuminuria, all medication should be sus-

pended except some bland alkalin diuretic, and blood taken either from the arm, or by wet cups over the chest or kidney region, after which warm physiologic saline solution should be introduced slowly.

Convalescence must be skillfully managed to avoid the development of chronic broncho-pneumonia, or the supervention of tuberculosis in non-tuberculous cases. Food, fresh air, hot and cold water bathing, and friction of the skin, with perhaps, in some cases iron, arsenic, calcium glycero-phosphate, and regulated pulmonary gymnastics meet the indications.

1525 Walnut Street.

THE TREATMENT OF BRONCHO-PNEUMONIA.

FRANK S. MEARA, M. D.,

PROFESSOR OF THERAPEUTICS IN CORNELL UNIVERSITY MEDICAL COLLEGE; ASSOCIATE ATTENDING PHYSICIAN TO ST. LUKE'S HOSPITAL; ASSOCIATE ATTENDING PHYSICIAN TO BELLEVUE HOSPITAL.

New York.

My treatment for broncho-pneumonia is much the same as my treatment for lobar-pneumonia; in fact, depends upon certain general principles that are applicable to the treatment of any infectious disease: First, rest of the body by a comfortable bed, by a well selected room, by a competent nurse; rest of mind by exclusion of visitors, anxieties and worries; rest by affording sleep. Secondly, by diet, including water, of which I give an abundance, offering the patient water frequently and allowing him to drink all he will; not forcing food during the first few days of the illness, but increasing it as the illness is prolonged and appreciating that the broncho-pneumonia that is much prolonged requires much the same dietetic consideration as typhoid fever. Third, by open-air; I am a thorough believer in the efficiency of the open air treatment, and it cannot be duplicated by cold air in a room with open windows. It is live air, moving air, acting upon the face and the mucous membrane of the air passages that affords stimulation to the vaso-motor and cardiac centers.

The patient, however, can benefit by open-air treatment only when proper attention is given his bed. The body must be kept scrupulously warm, the bed enclosed in impermeable material, the hot-water bottle to be kept in the bed, and only the face exposed. Fourth, by proper attention to the bowels, appreciating that at least half the cases of pneumonia show the same loss of tone in the larger intestine, giving rise to tympanites, as is the case in typhoid fever. Fifth, by realizing that most symptoms are the expression of a useful purpose on the part of the body; that probably fever is a purposeful reaction on the part of the organism and is not to be met by antipyretics unless the temperature goes to such heights that it imperils the vital centers, a condition of hyperpyrexia, to be combatted not by drugs but by cold water; that the purpose of a cough is to empty the bronchi of accumulated secretion and is to be interfered with only when the cough is purposeless and exhausting and then is to be met by codein in proper doses, or by inhalation of such mixtures as alcohol, chloroform and creosote in equal parts and in more severe cases by morphin; that the pains of pleurisy designed to lessen movements of the chest are best relieved by strapping and further ameliorated by local applications of cold or heat to the chest and morphin used only in the severest cases.

Sixth, by appreciating that the toxemia in terms of delirium and cardio-vascular failure are much less likely to occur in the open-air treatment than otherwise; that circulatory failure is in the vast majority of instances, vaso-motor failure and calls for vaso-motor stimulants, and yet knowing that we have a very few valuable vaso-motor stimulants and furthermore are not always able to determine whether the heart is or is not involved in the circulatory disturbance. I give, then, caffeine in the form of soluble salts of sodium salicylate, or sodium benzoate, 5 grain doses at 4 hour intervals or camphor in oil 10 per cent., in 5 grain doses at 4 hour intervals, or at 2 hour intervals or alternate them; but appreciate that their value is limited. I do not allow the circulation to falter too much before I use some member of the digitalis group, and use it in sufficient doses; we will say 20 to 30 minims of the tincture three or four times a day, or, if the case is urgent, ½ milligram of strophanthin in an adult, intramuscularly, and follow this with the doses mentioned of digitalis. While aware that the administration of digitalis in acute febrile conditions is not strongly fortified by pharmacological evidence, I am myself convinced that it is the most valuable of the circulatory stimulants in this condition.

If the case is unduly prolonged, as it sometimes is, I endeavor to discover the etiological organism by culture, make a vaccine from this and use it, following the general principles of vaccine therapy.

400 West End Ave.

THE TREATMENT OF LOBAR PNEUMONIA.

SAMUEL E. EARP, M. S., M. D.,

PROFESSOR OF CLINICAL MEDICINE IN INDIANA UNIVERSITY SCHOOL OF MEDICINE.

Indianapolis, Ind.

Good nursing and hygienic conditions are apropos. While perhaps it may be a repetition, I insist upon absolute cleanliness of the room and care that all emanations from the body shall be removed as soon as possible. The windows are taken out and in their places cheese cloth is tacked to the frame. Alcohol baths are given twice a day.

For internal administration I use a combination of guaiacol carbonate, quinin sulphate and spartein sulphate. Hexamethylenamin, five grains three times a day, is employed, as I believe it performs an important office in toxemic conditions and particularly in pneumococcemia. There are times when the temperature will subside when aspirin is given. Digitalis and strychnia to be used when indications warrant and not as routine therapy. Camphorated oil used hypodermically has in a few instances served me well in the extreme failure of vital forces. When there is a great amount of lung involvement with only a small area functuating, oxygen has rendered good service and the necessity of its use should be recognized early. Too often one waits too long, using it only as a last resort and is useless at such a time. I regard oxygen as an important agent if used sufficiently early.

The skin should be left free to act and not hampered by poultices or a jacket. Following this idea also adds to the comfort of the patients. For delirium or general brain manifestations an ice-cap is advisable and early in the disease it is sometimes necessary to use an ice-bag in the cardiac region. Whiskey occasionally may be indicated but not often. Sponging the patient, permitting the water to evaporate and not dry the skin afterwards, is frequently necessary in the course of the disease. I prefer the water to be at a temperature of 98°, and I add ice-water until it is gradually cooled to 65°.

The adoption of serum therapy in some cases has given me only fair results. Strictly speaking, experience has not made me a warm advocate of vaccines.

The selection of a diet is of great importance—one that will assimilate easily and yet contain the greatest amount of nutriment.

24½ Kentucky Ave.

THE TREATMENT OF LOBAR PNEUMONIA.

J. P. Crozer Griffith, M. D.,
CLINICAL PROFESSOR OF DISEASES OF CHILDREN IN THE UNIVERSITY OF PENNSYLVANIA.
Philadelphia.

Lobar-pneumonia or fibrinous or croupous pneumonia as it occurs in children, who form, naturally, the greater bulk of my patients, is generally a disease with a very favorable prognosis. Nearly all the cases of what has appeared to be fatal croupous-pneumonia in children are probably, instances of broncho-pneumonia of the pseudo-lobar type. The necessary conclusion is that the most important thing is to avoid over-dosing of the child, and to make efforts to help nature in the control of the disease, and not impede it.

I use hydro-therapy, oftenest in the form of warm tub baths, if the high temperature is attended by nervous symptoms. If these are not present, the temperature apparently does little damage. I do not urge food very greatly. I use cardiac stimulants, such as digitalis, caffein, and the like, should occasion require. I put more dependence, probably, upon alcohol than any other drug of this class. This in no way means that I think alcohol is necessary for every case. Cough requires a sedative only if very annoying; and then I do not hesitate to use opiates, provided there is no marked typanitic distention of the abdomen. Should this symptom be present, opiates make the condition worse, with increase of dyspnea, and impairment of the circulation by the upward pressure of the gas. Counter-irritation of any kind I believe to be entirely unnecessary; unless the case happens to be complicated by severe bronchitis. Such a complication is, however, more likely to occur in broncho-pneumonia.

1810 Spruce St.

THE TREATMENT OF BRONCHO-PNEUMONIA.

William A. Jenkins, M. D.,
PROFESSOR OF MEDICINE AND CLINICAL MEDICINE IN THE UNIVERSITY OF LOUISVILLE.
Louisville, Ky.

In discussing the broncho-pneumonia of infancy and early childhood, I feel the necessity of emphasizing the fact that prophylaxis is the most important part of the treatment. I mean that in these little ones we should try to dissipate the bronchitis before it becomes a broncho-pneumonia.

After the pneumonia is once established, however, and we have the temperature, the difficult breathing and the marked systemic disturbance, the story is very different. We should then direct our attention to the problem of preventing the thick, tenacious, inflammatory exudate from plugging up the small bronchial tubes and shutting off the air. This causes the greatest amount of trouble in these cases. I employ such remedies as will act through the blood, as infants and children do not expectorate material from the lungs.

In my experience the drugs that are most useful in this particular respect are apomorphin combined with strychnin nitrate in dosage at intervals according to age. For a child two years old I would give one 1/120 of a grain of strychnin nitrate and 1/60 of a grain of apormorphin every four hours. If there is much prostration, I believe that Cognac is the most useful remedy. For a child two years old I order a teaspoonful diluted with water or poured over a little cracked ice and given after the ice is melted, every three hours.

The iodides are useful along the same lines. In cases of cardiac failure digalen or camphorated oil are both useful and if necessary should be given hypodermatically.

I have no faith in remedies applied locally to the chest, unless it be a simple jacket for the chest, lined with absorbent cotton, to maintain an even temperature.

Atherton Building.

General Scientific

ON THE AGITATION OF AIR RICH IN CARBON DIOXIDE.

A Problem in Ventilation.

William Gilbert Anderson, Dr. P. H., M. D.,
PROFESSOR AND DIRECTOR, YALE UNIVERSITY GYMNASIUM.
New Haven, Conn.

The increasing interest in ventilation problems has led a number of investigators to study carefully the many factors which must be considered when the purification of housed aair is contemplated. Among the findings that have aroused or held the attention of health experts are the general conclusions that carbon dioxide, *per se*, is of little moment when regarded as a poison, also that air usually considered foul will lose its dangerous effects if agitated by fans. By "foul" is meant the increased precentage CO_2, heat and moisture.

The experiments of Dr. Leonard Hill of the London Hospital are widely known, hence they were among those selected for further investigation.

The writer, who devoted one college year to a study of carbon dioxide at the Harvard Medical School, Department of Preventive Medicine, made a number of tests similar to those of Dr. Hill, but did not secure the findings of the London physician.

His studies and experiments further led him to believe that any increase of the percentage of CO_2 above the normal amount is unwise and should be avoided. It may be that an increase in the amount of CO_2 is merely an index of the poisonous conditions of the atmosphere, but after living for weeks in a small air tight cabinet (375 cubic feet, contents), and continually breathing more than the normal amount of carbon dioxide, three parts per 10,000, the results were serious and affected the health of the experimenter. The data relative to this last assertion will be given later. This article has to do only with the special tests of Dr. Hill, a description of which follows:

The Relative Influence of the Heat and Chemical Impurity of Close Air, by Leonard Hill, R. A. Rowlands and H. R. Walker.*

"Our experimental chamber is air-tight with cubic content of about 3 metres, and is fitted with an electric stove, three electric fans in the roof, and glass windows.

"First type of experiment Seven students were shut up in the chamber with one of us—in all eight men. No ventilation was allowed. After 44 minutes the dry

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bulb stood at 87 degrees F., the wet bulb at 83 degrees F. The CO_2 had risen to 5.26 per cent.. The O_2 had fallen to 15.1 per cent. The discomfort felt was great, all were wet with sweat, and the skin of all was flushed. The talking and laughing of the occupants had gradually become less and then ceased.

"On putting on the electric fans and whirling the air in the chamber the relief was immediate and very great, and this in spite of the temperature continuing to rise. On putting off the fans the discomfort returned. The occupants cried out for the fans. No headache or after effects have followed this type of experiment which has been repeated five times.

"Second type of experiment. Two if us have been shut in the chamber, a subject and an observer. The electric heater is used to raise the chamber to about 85 degrees F. wet bulb. The subject inhales through a soda lime tin and exhales through a meter; his pulse frequency, pulmonary ventilation and body temperature are recorded. The putting on of the fans gives complete relief to the feelings of discomfort and lowers the pulse frequency.

"Having proved this the subject then ceased to use the soda lime tin. A bag containing CO_2 enough to raise the percentage in the chamber to about 2 per cent is allowed to escape into the chamber, unknown to the subject. The sudden increase of CO_2 has no influence on the discomfort—it is not sensed, in spite of the increased depth of respiration. The putting on or off of the fans relieves or induces the discomfort as before."

Below will be found a report of similar tests made by the writer. The cabinet, about the size of a small closet, was as nearly air-tight as it could be made. Artificial CO_2 was supplied from cylinders. The equipment included two humidifiers, psychrometers, thermometers, electric fans and such apparatus as the research called for.

On the fifteeneth day of January, 1912, a test was made with ten persons in the cabinet. It was very cold out of doors, the humidifiers had been at work all the morning and a small amount of artificial carbon dioxide had been slowly escaping up to eleven o'clock when we entered the cabinet.

Dr. A. had been in the room most of the morning but barely noticed the gradual increase of CO_2. Dr. R. entered at 10.45 a. m. and was immediately aware of a change in his respiration. Felt "as though he had been running up stairs."

At 4.30 a. m., eight more persons entered, the temperature was then 83 degrees F., the relative humidity 42, and the CO_2 250 parts. Each subject kept a record of pulse rate and respiration and later handed in a report of their feelings and condition.

The gas was at once turned on and permitted to rapidly escape until the percentage was 810 parts in ten thousand (8.10%) or 270 more than the normal amount.

As soon as the general distress was great and the occupants were ready and most willing to hurry from the cabinet, the fan was turned on. The feeling of closeness and warmth was relieved but the dypsnea was not. Suffering from this cause persisted. All were standing, the sense of oppression was such that the women felt as if they "should scream or faint,' 'and the men were quite ready to force open the doors. At 11.51 a. m. the doors were opened and the room immediately emptied. The door was at once closed, and five minutes later Drs. W. A. and A. again entered the cabinet. The CO_2 percentage was then 6.70 per cent. This may be accounted for by the opening and closing of the doors, which act will soon change the air contents.

Less discomfort was experienced, it seemed as though the two men had regained what corresponds to "second wind."

After leaving the vitiated air the flushed faces, the throbbing temples, the rapid breathing, the sensations of irritability, in most instances disappeared.

We quote from the reports handed in.

Dr. R.—"Dyspnea, slight headache, relief from heat when the air was agitated but no relief from dyspnea; no permanent bad after effects."

Dr. M.—"A very slight headache while in the room and for 30 minutes after, but normal the following day."

Dr. H. L. A.—"At the end of thirty minutes very much depressed, felt weak, dyspnea, headache both sides, parietal, felt crowded, mental depression. When all left the cabinet I experienced mental and physical relief. Headache lasted three-quarters of an hour."

Miss P.—"Dyspnea, headache, depression, suffered with coldness and had slight chills for half an hour after leaving the cabinet. All right in the evening and next day."

Dr. B.—"First noticed warmth, then dyspnea and flushing of the face, throbbing of the temple arteries later, distress in epigastrium, headache which became worse on leaving the room and lasted all day. Also slight dizziness and slight mental impairment."

Dr. H.—"Frontal headache, flushed face, some perspiration, symptoms of a cold increased. Following day no bad results in evidence."

Dr. S.—"Perspiration profuse while in the cabinet, chilly afterwards, dyspnea after about five minutes, sick in the stomach, headache, micturition frequent for four hours. All rest of the day, evening and night head felt full, could not use microscope. Felt well next day when out doors but 'stuffiish' in the laboratory."

Miss D.—"Had chills and other mental and physical disturbances similar to those mentioned by Miss P.

Dr. W. G. A.—"After leaving the cabinet there was severe pain in the head, temple and eyes. Some difficulty in seeing and a very evident uneasiness. Walked home, felt nervous. Ate usual light lunch. Attacked by dizziness at 1.15 p. m. (The blind headache of my boyhood). Treated these symptoms and reported at Medical School at 2 p. m. Could not see the figures on the gas apparatus. No after headache but a heavy feeling. Vision normal at 2.30, no return of blindness, but the after effects of poisoning were present until 9.15 p. m.

"When fatigued one particular tooth aches, and certain muscles twitch—biceps, deltoid, etc.—but on this occasion the flexor pollicis twitched for ten minutes and the molar ached or was senstive for three hours.

"When poisoned by digestive toxics I have blind headaches. When fatigued by overwork I am apprehensive and feel that much is to be accomplished that is not done. The CO_2 (?) produced this state of mind. In other words, fatigue of mind and body and CO_2 poisoning affect me alike.

"There was no rise in temperature and no chill. There is some slight nose bleeding; this also was in evidence after the week of January 8-13, 1912.

"Slight appendicitis pains January 15th and 16th. This also occurs when tired. Thirst, dry throat, coughed some on these dates."

Name.	Pulse — Before.	Pulse — After.	Respiration — Before.	Respiration — After.
Dr. R.	96	100	16	20
Dr. Am.	72	90	18	28
Dr. M.	84	100	16	20
Dr. Sch.	92	106	21	26
Dr. S.	100	122	24	34
Dr. W. G. A.	60	90	14	28
Miss P.	72	112	28	30
Miss D.	72	92	20	29
Dr. B.	88	116	20	18
Dr. H.	72	76	16	28

Relative humidity at 11:50 o'clock, 54%.
CO_2 at 11:50 o'clock, 8.10%.
CO_2 at 12:00 o'clock, 6.70% (after opening the door).
CO_2 at 2:00 o'clock, .75% (room empty two hours).
CO_2 at 4:00 o'clock, .32% (room not used after 12 noon).
Relative humidity at 4:00 o'clock, 27%.
Fan started at 11:45 o'clock.

The consensus of opinion of the subject was that the fan relieved the unpleasant symptoms *for a brief period only* when they again returned although the air was still being agitated.

The second test of a like character was also made in January, 1912. The cabinet was very warm and close, bright sun but outside air cold. At 11.30 the room temperature was 90 degrees F. Relative humidity 28. Artificial carbonic acid was rapidly admitted to the cabinet until there was 701 parts per 10,000 or 234 times the normal amount.

All were suffering from heat, moisture and carbon dioxide. The faces were flushed, the breathing deep and dyspneic, in some cases gasping, all were silent and appeared to be oppressed or apprehensive. The fan was turned on at 12.*0 but brought no relief from dyspnea, although it did relieve the feeling of closeness and oppressive warmth. Miss D. was obliged to leave the cabinet. She was later attacked by "chills."

The seven persons had been in the room for forty-five minutes and had not only been compelled to breathe the increasing amount of CO_2 but also the carbon dioxide from their own lungs.

The relative humidity at the close of the test was 52 per cent.

Ten minutes after the door had been opened the carbon dioxide had dropped to 380 parts.

As the individual report of the tests were similar to those given for the 15th of January we will not repeat them, only give a summary together with the change in pulse rate.

Test with seven persons in the cabinet. No special unpleasant symptoms until 12.20. The heat was very noticeable, the perspiration increasing, hands moist, slight temporal headache, attention wavering. Unusual lack of breath and a heavy feeling. The same symptoms as in any case of endurance, such as running, tennis, swimming or mountain climbing, but no nausea.

The most noticeable unpleasant symptoms disappeared almost at once upon leaving the cabinet. The fan exerted a mild beneficial effect, but in the case of CO_2 rich air it was apparent for but a very few seconds. The breathlessness did not disappear after the fan was turned on. As soon as the fan stopped all the symptoms recurred in more intense form.

The pulse rate increased as did the respiration.

Name.	Pulse — Before.	Pulse — After.
Dr. R.	86	100
Dr. K.	96	92
Dr. H.	74	86
Dr. A.	80	86
Dr. M.	80	100
Dr. An.	60	80
Miss B.	72	92

On the 24th of February, 1912, five members of the Sophomore Class of the Harvard Medical School acted as subjects. The test was to ascertain the effect of high CO_2 temperature and humidity upon the mind and body in still and agitated air, the men to remain in the cabinet one-half hour.

The men entered the cabinet at 2.00 p. m. (six in all, including Dr. A.). Temperature 88, relative humidity 44, and CO_2 .06%. They were impressed by the warmth and the slight "muggy" atmosphere, but in other respects were not affected by the environment. At 2:07 four cubic feet of artificial CO_2 were liberated *slowly* until the air content was 124 parts. The men took pulse and respiration before and after the test and made reports which will be found below.

At 2:23, twenty minutes later, the air held 232 parts of CO_2, but seemed to affect the men more, as it contained the output from the lungs. Men slightly uneasy and very warm. Fan turned on. It cooled the room, producing body relief, but did not change markedly the slight dispnea referred to by the men.

At 2:25, seven more cubic feet of CO_2 were rapidly liberate, raising the air content to 450 parts. Temperature 90°, relative humidity 63%. The men suffered some from "crowd poison," as shown by their reports. The fan turned on at 2:35.

It is evident that relief is afforded by agitating the air, but the forced breathing is not modified to a great extent as the CO_2 remains in the room.

Reports from the men. Time, 2:00 p. m. to 2:35 p. m.:

Name.	Pulse — Before.	Pulse — After.	Respiration — Before.	Respiration — After.
J. P. B.	102	106	20	23
G. H. G.	84	102	18	18 deep.
W. E. M.	86	92	26	28
H. C.	80	88	24	26
C. F. V.	80	98	18	24

Remarks.

J. P. B.—"Dyspnea onset sudden, breathing increasingly deepened, slight fatigue, moderate perspiration. In the last five minutes of the test H_2 CO_2 tasted on inhalation in nasopharynx. On leaving room the first three inspirations, noticed irritation and odor of ammonia gas; afterwards gave way to more pungent sensations in nasopharynx without any apparent odor, as of ozone, etc. No symptoms, save that of difficult breathing, frequent sighs (one every 5-10). Symptoms disappeared within five minutes after returning to normal atmosphere." (Writer was a chemist before entering the Harvard Medical School.)

G. H. G.—"Slight headache relieved by the fan. The fan relieved the discomfort from the heat, but not the need of deep breathing."

W. E. M.—"Feeling of warmth and perspiration which was relieved by the fan. Later the fan gave a feeling of relief from warmth, but the heavy, oppressive feeling with labored breathing was not relieved. Lips became dry and slightly coated. Returning to outer room the feeling at once passed off. The outside air has the odor of ammonia."

H. C.—"At end of twenty minutes felt extremely warm and slightly uncomfortable, but breathing normal, slight pain above the right eye. Fan turned on, felt cooler and headache disappeared. Second dose of CO_2 caused same symptoms, slight irritation of pharynx so that I felt like coughing, breathing was deeper, but not markedly increased in number of respirations. Forehead felt clammy but no beads of perspiration. Upon leaving the room the odor was pungent

and slightly irritating to the mucuous membranes of the nose. Headache disappeared on leaving the room, no feeling of faintness."

C. F. V.—"Dyspnea and perspiration. Breathing deep and rapid, respiration decreased to 20 after fan started. Discomfort, which was slightly relieved after the fan started. Had no feeling of faintness. Head felt good. I think I had a more comfortable feeling just before I went out than I did five minutes before that time. On leaving the room a peculiar odor was noticed."

W. G. A.—"No symptoms except slight dyspnea. Fan relieves the feeling of heat and wetness, but not dyspnea. After these tests a slight sore throat."

W. G. A. is becoming accustomed to the cabinet air.

One interesting fact has been apparent in these studies, namely, while there has been an odor of closeness after each test, it has not been overpowering and not so disagreeable as we should expect after reading reports of other tests.

Conclusions.

We have stated elsewhere that the views held by the majority of investigators that heat and humidity and not CO_2 are the disturbing features in vitiated air "are distressing in their harmony." We have made a number of experiments and have come to the conclusion that the CO_2 factor is without doubt an important one, if the gas is present in large amounts. It is an undesirable element, insidious in its effects, if habitually and continually breathed in small amounts above the normal percentage.

We spent many hours in the cabinet during the months of January and February, 1912, the temperature varying from 70 to 120° F., and with never a very hgih relative humitdity, but in an apparently moist atmosphere. We have experienced much difficulty in raising the relative humidity of the cabinet.

When the air was moist and warm, but contained a low CO_2 per cent, the results were distinctly unpleasant and strictly in accordance with conditions described elsewhere. If we added to the above condition carbon dioxide up to 25 or 30 parts we noticed slightly increased disturbing features. We believe that persons may occasionally work in such an atmosphere without distress, but a daily repetition of this mode of living is unhealthy.

We also believe that it is unwise to remain several hours a day in an atmosphere containing twelve or more parts of CO_2 even if the temperature is low and the air dry.

The following short test indicates the inability of subjects to appreciate the increase of carbon dioxide, but it does not follow that a daily repetition would leave them quite as free from unpleasant after effects.

On January 5, 1912, Dr. R. dictated to his secretary from 11 to 12 o'clock. The cabinet was used. Dr. A. was present during the period (three persons in the room for one hour). At 11 o'clock the CO_2 was .04%, the relative humidity, 28%; temperature, 74 F.; at 12 o'clock the CO_2 was .38%; relative humidity, 36%; temperature, 77.5 F.

Aside from a tendency to yawn, sigh, stretch the muscles, there were no unpleasant symptoms. Dr. A. complained of being thirsty with dry throat. The day was cold. As the result of a number of observations we find that an individual will raise the CO_2% in the cabinet ten parts in one hour.

It has often been stated that "The unpleasant effects of remaining in a hot, moist, CO_2 rich atmosphere are due entirely to the *heat* and *moisture*, and not to the carbon dioxide. Agitating the air will relieve the symptoms and ward off danger even if persons continue to remain in the vitiated air."

Our tests have shown that the agitated air does relieve, for a short time only, the unpleasant symptoms, but we do not believe that the danger is obviated by the use of fans if the toxic conditions are permitted to remain.

A FORM OF TREATMENT IN RESPECTIVE CASES OF LUPUS VULGARIS AND PULMONARY TUBERCULOSIS.*

WILLIAM J. MANNING, M. D.,
MEDICAL OFFICER, U. S. GOVERNMENT PRINTING OFFICE.
Washington, D. C.

If one will reason upon the peculiar fact presented after the necrosis of the variety of tissue cells concerned in an infected tubercular area during and after the formation of the nodule with its resulting nonvascularity, it would appear very difficult to conceive, owing to the absence of blood channels ramifying to the part, how any neutralizing agent or serum introduced or given intravenously reaches the infected area, except to a very limited extent.

This statement would appear reasonable and worthy of deducement on account of the absolute absence of ramifying blood and lymph channels and the consequent means of communication to the part affected that would extend through the caseous walls and mass of tissue debris in which the bacilli are found.

I quote from the Muir and Ritchie's Bacteriology, edition 1907, page 243, on the action of tuberculosis as concerns the tissues:

"There can be no doubt that the cell necrosis and subsequent caseation depend upon the products of the bacilli, and are not due to the fact that the tubercle nodule is non-vascular. This nonvascularity itself is to be explained by the circumstance that young capillaries cannot grow into a part where tubercle bacilli are active, and that the already existing capillaries become thrombosed, owing to the action of the bacillary products on their walls, and ultimately disappear. * * *"

After reflecting on the means to overcome this only too true condition, I decided to use Lugol's solution in combination with old tuberculin in an endeavor to throw by means of the galvanic current a sufficient quantity of the tuberculin combination entirely into and thus permeate the infected area or to penetrate to a degree sufficient to destroy *en masse* or otherwise attentuate the bacilli of tuberculosis or any mixed infection in the tissues existing in connection therewith.

This appeared to be the only feasible way in which to overcome the condition, because, upon reflection, if any neutralizing agent is administered by the syringe to the part it can only be expected to penetrate to a limited or circumscribed zone, in the absence of blood channels, and in a few hours, owing to the rapid proliferation of the organism, the treated zone becomes reinfected and apparently renders any effort in this direction futile.

Through the courtesy and kindness of Dr. H. H. Hazen, and Dr. W. A. Garfield of this city, I secured at the Freedman's Hospital skin clinic, on June

*Read at the Forty-first Annual Meeting of the American Public Health Association, Colorado Springs, September 9-13, 1913.

15 of the present year, a case of lupus vulgaris, in which the identification of the organism present had been shown as positive. The case is somewhat classical, as I afterwards determined, for the boy, according to Dr. Randolph Carmichael, of Washington, had appeared in his skin clinic at the Emergency Hospital, where the doctor had made the same positive bacillus diagnosis five years before, but the patient, according to the doctor, was not at that time so extensively involved as shown in the photograph marked "Fig. 1," which was taken on June 12, 1913, two days previous to the time I began treatment.

According to the mother, the early history shows that the boy had this "sore face" since he was two years of age, and that it first began to appear after a fall received upon the head, the scar of which still remains visible upon the right side of forehead, and from which the lupus is to be seen, as shown in the photograph, radiating from the lower angle.

Fig. I. Showing condition of the face of patient on June 12, 1913, before treatment began on June 15, 1913. Note the presence of the tubercular gland at the base of right jaw.

An examination of the boy showed a robust body with no indication whatever of pulmonary involvement, although on admittance to the hospital a temperature existed that has since disappeared under the treatment. The respiration and the pulse were found to be normal. The fever probably existed as the result of the local infection. Upon examining the face I found the infection to extend from behind the right ear with entire involvement of the latter and thence downward along the angle of the jaw, and upward to the outer canthus of the right eye and eyebrow, extending from this point to the left side of nose. Below was found a large tubercular caseous gland, the size of a hen's egg, fixed and rigid at the commencement of treatment, and which shows plainly in Fig. 1. This gland has since totally disappeared, as may be seen in the succeeding photographs.

Fig. II. Showing condition of the face of patient on June 25, 1913, ten days after first treatment. Cicatrization largely in evidence over entire infected area. Tuberculous gland greatly reduced in size. No pus.

The state of the tissue affected was soggy, putrid, and constantly discharging pus through many sinuses and fissures so thickly situated as to appear to the eye at first to be emerging from an open discharging raw surface and was loathsome to look upon. About four ounces of pus were thus being discharged during each twenty-four hours. I applied 3 cc. of Lugol's solution in combination with 0.5 cc. of old tuberculin of 1-100 dilution in 50 cc. of a normal saline solution, making a piece of lintine previously cut to fit the entire infected surface of face, inclusive of gland, and over this molded a block tin electrode, 18-guage, cut so as to leave a margin of about one-half inch of lintine showing from beneath the tin electrode. This I found by experience was necessary in order to avoid burns and discomfort to the patient when the edges of the metal came in contact with the tissue direct.

A galvanic current of 15 mil. amperes' stregnth was allowed to flow through the anterior or negative electrode, the positive forming the posterior electrode; previous laboratory teests having shown the chemicals used to be electronegative in action. This procedure was continued for one-half hour, and the current was then raised to 20 mil. amperes for the remaining half hour of the total one hour treatment. The positive electrode, smaller in proportion to the negative, was placed on the right side of the neck and similarly prepared, save that the lintine was immersed only with a saturated salt solution, the intent being in all instances to drive the electrolyzed iodin and tuberculin ions, in combination, through the tissue at an angle from pole to pole, a distance of approximately two and a half inches.

Three treatments only were given, two days apart, and the last just one week from the second treatment, but the current strength was raised to 30 mil. amperes in the last half of each hour's treatment from an initial strength of 15 mil. amperes in each first half hour, one

hour's time constituting each specific treatment, the same proportions of Lugol's solution and tuberculin being used in the same manner as previously described in each instance.

While many will doubtless claim that in using Koch's old tuberculin—the first production of this revered master—in lieu of the newer preparation, far better results might have been obtained with the later and newer productions, yet I have endeavored to keep in mind constantly that any exosmosis of the endotoxin or elaborations produced in virile cultures from the living active bacilli, before being killed with heat, in comparison with physical and chemical changes presumably taking place during the preparation of the other tuberculin preparations, might specifically possess some innate chemotactic virtue or action by a selective manner in searching out and combining with its own and thus possibly serve, in

Fig. III. Showing condition of the face of patient on July 15, 1913, thirty days after first treatment. Cicatrization about complete. Face resembles a healed burn of the second degree. Note the entire disappearance of tubercular gland.

a measure, as a vehicle in combination with the iodin, that would tend to alter the function of or attenuate the organism concerned when carried through it by the current.

Just what took place as concerns the bacillus or its products in the tissue in the case of lupus here presented one is unable to state definitely; we must rely in a great measure, if not wholly, upon the clinical manifestations that are apparent to anyone at a glance if he will look upon the series of photographs herewith, or examine the patient personally.

At the U. S. Naval Medical School in this city, Doctor Clarke and I demonstrated the feasibility of passing iodin in salt solution by osmosis or electrical diffusion through one-half of a hard-boiled egg, the yolk being removed and the resulting cavity filled with starch water the egg floating in a glass dish containing the salt solution and iodin, using simply, to aid the osmosis, a single dry cell with the negative wire placed in the salt solution contained in the glass dish, the positive wire being immersed in the starch water in the concavity of the egg. The blue iodin reaction should show to anyone who may care to try the experiment in from ten to fifteen minutes, or at the latest in half hour, and is pronounced and distinct.

I am glad to be able to show this case of lupus photographically and the improvement and healing that have taken place, because it demonstrates at once ocularly what may have transpired in the lungs in a case of pulmonary tuberculosis that the writer recently treated in the Washington Asylum Hospital, which was turned over to me by the courtesy of Dr. Percy Hickling, Chief of Staff, on May 1, 1913.

The patient, a bartender, white, 38 years old, had a history of infection of both lungs that extended over a period of two years. In the previous six months he has had most severe night sweats, loss of weight, and coughed all night, accompanied by profuse expectoration to the amount of approximately a litre in twenty-four hours. The cough was so severe that he informed me he would often fall over upon his bed in the morning after a sleepless night thoroughly exhausted, and after "bracing" himself for the day's work with fifteen or twenty drinks of whiskey, he would then have comparative ease during the day. Upon his arrival at the hospital he informed me he fell three times to the ground from exhaustion while traversing the distance from the car terminus to the hospital grounds, a distance of about six hundred yards.

The sputum examination showed the presence of the bacilli. He was given the routine treatment of emulsion and creosote and the regulation diet. He was running a temperature at the time of admittance. Two days after his entrance I gave him the first treatment, which consisted of 4 cc. of Lugol's solution and 1 cc. of 1-100 dilution of old tuberculin, in 75 cc. of saturated salt solution, applied by means of the electrodes shown

Fig. IV. Copper negative and positive electrodes described in text and utilized upon case of pulmonary tuberculosis.

in photograph (Fig. IV), and in the same manner as described in the case of lupus, saturating the lintine in the solution and allowing the cotton lining saturated with the solution to extend with a margin of half an inch from beneath the electrodes.

Each treatment covered a period of an hour and a half, and 35 mil. amperes of a galvanic current were used for the first half hour. The amperage was then reduced to 20 mil. amperes for the remaining hour, as he complained of the heat from the electrodes at the former strength, but bore the last strength without any discomfort whatsoever. The day after the first treatment he informed me that the sense of weight and pain about the chest left him during the night and that he breathed with less exertion and with greater ease. The record shows that he slept soundly for a period of eight hours, and he informed me that it had been his first complete night's rest for a period of over a year. The temperature chart showed the tuberculin curve or one greatly simulating it, but on the third day it dropped to its former level. This rise in temperature after each treatment in which tuberculin was used was noted in each instance. Four days later he was given another treatment, the same amount of iodin and tuberculin being used with the same current strength. The iodin compress was applied upon negative electrode at back.

The morning after the second treatment the nurse informed me that the amount of his expectorations was rapidly diminishing, and then by measurement in separate glass jars, each day, upon the sixth day, it was found to have dropped one-half in amount and in character had changed from the typical stringy greenish lump to a thin light, frothy material, mucoid in appearance. After a lapse of one week he was given the third treatment, consisting of a similar amount of the iodin and tuberculin combination, and the same current strength being used as in the other instances. On the fifteenth day the cough had about disappeared, save for a short time in the morning, and the night sweats had ceased completely. The expectoration was very scanty and a sputum examination showed a negative condition so far as the bacilli were concerned.

The patient was placed upon a tonic and began to gain rapidly in weight and strength, gaining as much as seven and one-half pounds in one month.

After being in the institution for a period of about six weeks, he made application and was discharged without my knowledge. He sought employment at his former occupation, so he informed me later, but could not find work, and after being absent from the hospital for about ten days he returned suffering from alcoholism. He informed me that during this time that he drank almost constantly during his sojourn and slept and ate irregularly. There was, however, no return of the former symptoms, save that he complained of being weak physically. As the man was eligible to the Soldiers' Home the writer suceeded in having him admitted to this place, where regularity of meals and proper rest have continued to increase his weight, and his strength is consequently coming back to him. He also writes me under date of July 21, 1913, that he has had no return of his "lung trouble."

The electrodes used upon this case and shown in Fig. IV the writer made by molding large sheets of softened electrotyper's wax over the thorax and back of a thin, living subject, and then chilling the wax by means of ice water compresses to the shape thus obtained. Later the wax concave and convex surfaces were covered with graphite to give a metallic surface, and the molded wax forms were then placed in an electrotyper's vat and the two copper shells were thus deposited or constructed. This gives the electrodes shown a univer-

Fig. V. Copper electrodes in position on the body and secured in place with turns of two-inch rubber rollers. Binding posts shown with positive and negative wires attached.

sal feature in that they are easily adapted to the average emaciated thorax and back and can be secured in place by two-inch rubber rollers, as shown in the photograph.

The outer surfaces are covered with electrician's adhesive tape for purpose of insulation when the electrodes come in contact with the bed clothes during treatment. Thin, ductile or pliable metal sheets molded over the parts should accomplish the same results. They are made of large size in order to cover the entire lung area, rather than of small dimensions to cover here and there any spots revealed by percussion of the underlying lungs, that at best are dubious as to the extent of the infection.

Berzelius would appear to be the first to use the cataphoretic method for anesthesia and the same procedure has been utilized by Newman, Massey, Bennett, Morton, Hastings, and others in this country as well as by distinguished electro therapeutists in Europe, so that there is nothing new in driving medicaments into a tissue by an electro current, and about ten years ago Dr. Morton successfully anesthetized sensitive dentine by the use of the galvanic current and cocaine.

Should it transpire that the osmotic method outlined possesses virtue in other cases as concerns pulmonary infections, as clinically appears to have resulted beyond a reasonable doubt in this case of lupus—and I firmly believe in this regard it is only a matter of the prolongation of the current or electrical diffusion applied in connection with the solution described—at the time of, and in the frequency of treatments in connection with each form of tubercular infections. We should try to keep

before us during further work of this kind in order to reach the goal desired the fact that the human body is after all only a number of porous diaphragms made up of a series of animal membranes through which the phenemenon of endosmosis must and does take place presumably as surely demonstrated in laboratory practice, the electrical current accelerating such action.

The character of the apparatus described by which this work may be thoroughly tried out and utilized is designedly simple, so that the remote practitioner, wherever situated, has at his ready command all the necessary material required at the drug store as well as the hardware store for any metal electrodes and dry cells for the galvanic current.

Regarding the views and exhibits presented in this paper as concerns tuberculosis, one realizes that he has cut loose altogether from the existing moorings. No suggestion or theory has been broached, however, but which a little further increase of our scientific knowledge may not show to be eminently probable; none, it would appear, are irretrievably beyond the jurisdiction of additional scientific tests, and other physicians are earnestly invited to take up this work and apply it to the various forms of tuberculosis appearing in the body.

If I might be permitted to add a word or two of caution in connection with the treatment outlined, it would be well, in every case, to ascertain any idiosyncrasy to iodine possessed by the patient, and additionally to be satisfied with a low degree of current—say not over fifteen or twenty miliamperes extended over a period of one hour or more during each specific treatment, with the consequent avoidance of burns or discomfort to the patient; the number of miliamperes being raised or lowered according to each specific physiological resistance encountered. Heating the salt solution, with contained remedial agents previous to application will be found to obviate any chill to the patient while the electrodes are being adjusted to the body.

My thanks are due to Medical Inspector E. R. Stitt, U. S. N., G. F. Clarke, Past Assistant Surgeon, U. S. N., A. H. Glennan, Assistant Surgeon General, U. S. P. H. S., Dr. H. H. Hazen, Dr. George H. Simmons, Dr. Randolph Carmichael, Dr. Wm. W. Woodward, Dr. Percy Hickling, and Dr. D. P. Bush, for courtesies extended, and to Dr. Walter Van Swerengen, pathologist of Freedman's Hospital, for kindly taking photographs for use in this article.

Abstract of Discussion.

Dr. Hastings: For twenty-five years I have used cataphoric electricity and was much interested to know just about what medicaments can be forced into the tissues. However, the forcing of tuberculin, I think, is entirely new. According to the doctor's reports, the result that he has gotten certainly opens up a new field of investigation. I hope that those who work with electrical apparatus will assist the doctor to carry out these investigations in a practical way.

Dr. Crankshaw: In regard to the treatment of this line of cases, as the photographs show, the results that the doctor has obtained are remarkable, a case of lupus being entirely healed within thirty days, and I hope that in the months to come, and knowing that Dr. Manning is of an extremely inventive turn of mind, he will be able to open up a wonderful field in this direction. I wish to congratulate Dr. Manning on his treatise, which has been presented in so masterful a manner.

Dr. Sumner: There is nothing that speaks to one so forcibly as a fact illustrated and applied. While listening very attentively to Dr. Manning's paper, I recalled an incident that came under my own observation while working in the bacteriological laboratory, in which the germ of diphtheria had been used to inoculate bouillon. The bouillon was filtered through a non-glazed Pasteur filter, and and a pure specimen of the bouillon used to inoculate a guinea pig with no effect whatever. Then the bouillon which had been inoculated and the germ filtered out of the bouillon, and such a product being used the filtrate was tried upon a guinea pig, which died, thereby showing that it was the toxin of the micro-organism that killed. In listening to the doctor's paper I pictured in my mind a lung cavity. Now, in the injection of tuberculin into the system the doctor very nicely illustrated the fact that the destroyed tissue was void of blood vessels; therefore, you could only get the serum to the part which had blood vessels. By using his method of the iodin solution and the earlier product of tuberculin, as I understand it, and using this in a normal salt solution and placing it over the chest and then placing the negative pole to the front and the positive pole to the back, he produces an ecchymosis of the iodin solution and the tuberculin into the infected tissues. I am very glad to listen to this paper. It enters a new field, and if the medicament or neutralizing agent can be passed through the tissues by the use of the galvanic current, thereby destroying the micro-organism, you destroy the thing that produces the toxin; otherwise you have your endotoxin in the lung and your micro-organism continuing to make the toxin, and by and by your system becomes destroyed by the micro-organism working in the system and manufacturing the toxin; but the doctor comes here with something new and I believe that it is worthy of careful consideration. I think it would be an excellent idea for this Section to appoint a committee to take up this work of his and investigate it and report the results. I do not know whether it would be practical to ask the Surgeons General of the United States Army, Navy and Public Health Service, all residents of Washington and all known to Dr. Manning, and ask them to take this matter up in such a way that it may be demonstrated whether or not this new field may be brought into practical use in the treatment of the dreaded tuberculosis.

Dr. Woodward (Health Officer, Washington, D. C.): I am very willing to second Dr. Sumner's motion for the appointment of such a committee. Having seen the disastrous effect of the advent of Friedmann in this country, I think we might even go a step further and try, with the aid of other organizations in this country, to provide some means where ideas of this kind can be promptly either developed or exploded. Dr. Manning has been very frank with his work, somewhat contrary to Dr. Friedmann. He has recognized the possible limitations, and has appealed, I believe, to various officers for opportunities to either prove or disprove his theory. Any aid I have been giving, I think Dr. Manning will admit, has been rather in the way of destructive criticism. I did not expect him to obtain any results when he first broached the matter to me, either in his lupus or pulmonary case, but it is one thing to criticize a theory or a hypothesis from a purely theoretical standpoint and another thing to test an idea out on a patient or animals as he has done in these cases. Dr. Manning is not in active practice; he is an officer attached to the National Printing Office, and what he has shown and accomplished here is simply in the way of developing; this work has been purely a labor of love with him; he has taken his own money, time and his own resources, under adverse circumstances, and for that reason is to be greatly commended.

Dr. Carr: I feel very grateful to Dr. Manning for this information that he has brought us this morning, and I am very glad to second Dr. Sumner's idea. I believe this is the way to expedite and get action on this matter, and those Government departments are all represented in our Association.

Dr. Manning (closing): The cases of immunization favorably reported by tuberculin can possibly be explained by the fact that the tuberculin is administered before any lesions exist; therefore, the blood vessels to the infected part have not been destroyed, and I believe that tuberculin will neutralize and attenuate the organisms just as Dr. Koch first stated, but I believe that tuberculin fails to act after the lesion exists simply because the caseous, non-vascular environment prevents. When there are no nodules and the tuberculin is present in the blood by an osmosis that is aided by the saline character of the blood, the tuberculin combines with the organism and thus neutralizes the bacilli. When, however, we take a mass of tissue debris in which these organisms exist and that in addition is surrounded by caseous walls in which no arteriole or blood vessel will ramify or grow, I cannot conceive of how any neutralizing agent or any serum can be carried to the part to accomplish this purpose.

In all instances of any infection the type of foreign organism or pathological cell present with its thin, porous, protein walls is acted upon by the blood in the manner described with resulting sequelæ in the form of disease solely because of the fact that it happens to inhabit the blood stream at a time when the phenomenon of osmosis continues unceasing with the normal or nutritive cells present.

The theory is advanced that it sets up a form of auto infection with resulting attenuation, or death, as concerns the organism, which in this instance is the tubercle bacillus; the same principle of osmosis inclusive of endosmosis or exosmosis going on in any normal tissue cells present, aided by the saline blood; differences in the specific gravity of the blood and fluid contents of cell keeping up the constant interchange.

Possibly the hypothesis thus advanced may explain the mechanism of anaphylaxis in that the nervous type of tissue cells controlling respiration, heart action, and other vital centres, become involved by having a toxic protein bacterial elaborations—wonderfully complex—osmosed out into the blood stream. When this amount is augmented by any artificially introduced elaboration protein obtained from the same organism from cultures grown outside of the body it may possibly result in the nervous tissue cells being simply overwhelmed and rapidly ceasing to functionate as a result of the general systemic continuous osmotic process going on; the respective blood and cell elaborations interchange terminating because of the altered specific gravity of the normal cell product and before any inherent adjustment can take place.

Editorial Note.—This is the first of a series of papers by Doctor Manning pertaining to the treatment of tuberculosis, based upon the theory that he has advanced that any serum or remedial agent given by the mouth or intravenously fails to reach the infected tuberculæ area owing to the early destruction of blood and lymph channels ramifying to the lesion.

His next paper will dwell upon experiments made up with the aid of the trocar, or hypodermic needle, used as an electric pole and which enters the apex of the lung (the early and usual site of the lesion) from the shoulder; the iodin and tuberculin being ionized directly into the infection and caseous material through the mouth of the lumen of the tube *in situ*, as compared with injections direct into the pathological field at the points named under high mechanical pressure.

The article will appear in an early number of the MEDICAL TIMES and will be illustrated, in addition to giving the complete technique employed together with any results accomplished.

THE PROBLEM OF THE CRIMINAL INSANE.

From the Standpoint of the Alienist.*

FRANK WADE ROBERTSON, M. D.
New York.

As society has perfected its organization and governments have enlarged the scope of their activities, new problems have arisen, to the solution of which years of painstaking and studious effort have been devoted. In many instances only a partial solution has been possible, but in this fact there is no reason for discouragement, for it is the age old story of real progress.

The revolution in the social conception of the nature of insanity, due to the teachings of medical science, and the recognition that it is a disease and not a demonacal possession, resulted in an enlightened public opinion, which demanded a more humane and scientific method of caring for the criminal insane of this state. It crystallized into legislative enactments in 1855 and resulted in the establishment of a separate institution for this class, which was opened in Auburn, N. Y., in 1859. This institution was subsequently removed to Fishkill Landing and is now known as the Matteawan State Hospital. In 1900 another hospital was opened at Dannemora and an attempt was made to establish a classification which would separate the felons from the others, Matteawan receiving those committed on order of courts of criminal jurisdiction, persons convicted of petty crimes or misdemeanors—not felons—becoming insane while undergoing sentence, and patients from other state hospitals exhibiting criminal tendencies.

In the limited time at my disposal it would be impossible to cover comprehensively a field so broad as that indicated by the title of my paper. I shall therefore confine myself to what seems to me some of its most important phases. That some change must soon be made in the legal definition of what constitutes insanity and irresponsibility no one conversant with the situation seriously doubts.

Section 20 of the Penal Code of the State of New York reads: "An act done by a person who is an idiot, imbecile, lunatic, or insane, is not a crime. A person cannot be tried, sentenced to any punishment or punished for a crime when he is in a state of idiocy, imbecility, lunacy or insanity so as to be incapable of understanding the proceeding or making his defense."

Section 21. "A person is not excused from criminal liability as an idiot, imbecile, lunatic, or insane person, except upon proof that, at the time of committing the alleged criminal act, he was laboring under such a defect of reason as either,

(1) Not to know the nature and quality of the act he was doing; or (2) not to know that the act was wrong.

In this latter section we see the attempt made to determine to whom the act shall grant immunity from punishment.

To the alienist it appears most unfortunate that the law still clings to the old and almost obsolete definition of insanity, formulated in 1843 in the McNaughton case. It is well known to physicians who have examined the insane that there is a large group, particularly in that form of insanity known as paranoia, having a distinct knowledge of the nature of an act committed, and whether such act be wrong. It is particularly in these cases that the "knowledge of right and wrong" does not agree with the present day knowledge of mental irresponsibility as understood from close observation of the insane.

The writer has had several conversations with persons who, beyond shadow of doubt, were insane, who have said practically this: "I could commit any crime, even the capital crime of murder, and I should not be punished for it, as I am insane and am in an institution for the insane, and so am not responsible for what I do. *I have been locked up here because of my irresponsibility.*" While these patients were actually insane, they appeared to be perfectly rational in conversing upon most subjects. A layman, at least, would not discover their insanity, unless some subject closely related to their delusional field was touched upon. There is no doubt that these men had sufficient mental capacity to understand the nature and quality of the acts they were discussing as well as ability to appreciate that the acts were wrong.

The question would have been, had they committed a criminal act, whether they had the power of WILL or FREEDOM of CHOICE to choose between committing or not committing the act. And at this point to my mind, lies the defect in the legal definition or conception of insanity as it stands. If, as the result of disease, there is an impairment of the power of selection, or choice, or will, in the committing of acts, and the influence of some frenzy or over indulgence in stimulants or drugs is satisfactorily excluded, it would seem to be a suitable question for the jury to determine.

*Read before the Society of Medical Jurisprudence, Nov. 10, 1913.

before us during further work of this kind in order to reach the goal desired the fact that the human body is after all only a number of porous diaphragms made up of a series of animal membranes through which the phenemenon of endosmosis must and does take place presumably as surely demonstrated in laboratory practice, the electrical current accelerating such action.

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If I might be permitted to add a word or two of caution in connection with the treatment outlined, it would be well, in every case, to ascertain any idiosyncrasy to iodine possessed by the patient, and additionally to be satisfied with a low degree of current—say not over fifteen or twenty miliamperes extended over a period of one hour or more during each specific treatment, with the consequent avoidance of burns or discomfort to the patient; the number of miliamperes being raised or lowered according to each specific physiological resistance encountered. Heating the salt solution, with contained remedial agents previous to application will be found to obviate any chill to the patient while the electrodes are being adjusted to the body.

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Dr. Hastings: For twenty-five years I have used cataphoric electricity and was much interested to know just about what medicaments can be forced into the tissues. However, the forcing of tuberculin, I think, is entirely new. According to the doctor's reports, the result that he has gotten certainly opens up a new field of investigation. I hope that those who work with electrical apparatus will assist the doctor to carry out these investigations in a practical way.

Dr. Crankshaw: In regard to the treatment of this line of cases, as the photographs show, the results that the doctor has obtained are remarkable, a case of lupus being entirely healed within thirty days, and I hope that in the months to come, and knowing that Dr. Manning is of an extremely inventive turn of mind, he will be able to open up a wonderful field in this direction. I wish to congratulate Dr. Manning on his treatise, which has been presented in so masterful a manner.

Dr. Sumner: There is nothing that speaks to one so forcibly as a fact illustrated and applied. While listening very attentively to Dr. Manning's paper, I recalled an incident that came under my own observation while working in the bacteriological laboratory, in which the germ of diphtheria had been used to inoculate bouillon. The bouillon was filtered through a non-glazed Pasteur filter, and and a pure specimen of the bouillon used to inoculate a guinea pig with no effect whatever. Then the bouillon which had been inoculated and the germ filtered out of the bouillon, and such a product being used the filtrate was tried upon a guinea pig, which died, thereby showing that it was the toxin of the micro-organism that killed. In listening to the doctor's paper I pictured in my mind a lung cavity. Now, in the injection of tuberculin into the system the doctor very nicely illustrated the fact that the destroyed tissue was void of blood vessels; therefore, you could only get the serum to the part which had blood vessels. By using his method of the iodin solution and the earlier product of tuberculin, as I understand it, and using this in a normal salt solution and placing it over the chest and then placing the negative pole to the front and the positive pole to the back, he produces an ecchymosis of the iodin solution and the tuberculin into the infected tissues. I am very glad to listen to this paper. It enters a new field, and if the medicament or neutralizing agent can be passed through the tissues by the use of the galvanic current, thereby destroying the micro-organism, you destroy the thing that produces the toxin; otherwise you have your endotoxin in the lung and your micro-organism continuing to make the toxin, and by and by your system becomes destroyed by the micro-organism working in the system and manufacturing the toxin; but the doctor comes here with something new and I believe that it is worthy of careful consideration. I think it would be an excellent idea for this Section to appoint a committee to take up this work of his and investigate it and report the results. I do not know whether it would be practical to ask the Surgeons General of the United States Army, Navy and Public Health Service, all residents of Washington and all known to Dr. Manning, and ask them to take this matter up in such a way that it may be demonstrated whether or not this new field may be brought into practical use in the treatment of the dreaded tuberculosis.

Dr. Woodward (Health Officer, Washington, D. C.): I am very willing to second Dr. Sumner's motion for the appointment of such a committee. Having seen the disastrous effect of the advent of Friedmann in this country, I think we might even go a step further and try, with the aid of other organizations in this country, to provide some means where ideas of this kind can be promptly either developed or exploded. Dr. Manning has been very frank with his work, somewhat contrary to Dr. Friedmann. He has recognized the possible limitations, and has appealed, I believe, to various officers for opportunities to either prove or disprove his theory. Any aid I have been giving, I think Dr. Manning will admit, has been rather in the way of destructive criticism. I did not expect him to obtain any results when he first broached the matter to me, either in his lupus or pulmonary case, but it is one thing to criticize a theory or a hypothesis from a purely theoretical standpoint and another thing to test an idea out on a patient or animals as he has done in these cases. Dr. Manning is not in active practice; he is an officer attached to the National Printing Office, and what he has shown and accomplished here is simply in the way of developing; this work has been purely a labor of love with him; he has taken his own money, time and his own resources, under adverse circumstances, and for that reason is to be greatly commended.

Dr. Carr: I feel very grateful to Dr. Manning for this information that he has brought us this morning, and I am very glad to second Dr. Sumner's idea. I believe this is the way to expedite and get action on this matter, and those Government departments are all represented in our Association.

Dr. Manning (closing): The cases of immunization favorably reported by tuberculin can possibly be explained by the fact that the tuberculin is administered before any lesions exist; therefore, the blood vessels to the infected part have not been destroyed, and I believe that tuberculin will neutralize and attenuate the organisms just as Dr. Koch first stated, but I believe that tuberculin fails to act after the lesion exists simply because the caseous, non-vascular environment prevents. When there are no nodules and the tuberculin is present in the blood by an osmosis that is aided by the saline character of the blood, the tuberculin combines with the organism and thus neutralizes the bacilli. When, however, we take a mass of tissue debris in which these organisms exist and that in addition is surrounded by caseous walls in which no arteriole or blood vessel will ramify or grow, I cannot conceive of how any neutralizing agent or any serum can be carried to the part to accomplish this purpose.

In all instances of any infection the type of foreign organism or pathological cell present with its thin, porous, protein walls is acted upon by the blood in the manner described with resulting sequelæ in the form of disease solely because of the fact that it happens to inhabit the blood stream at a time when the phenomenon of osmosis continues unceasing with the normal or nutritive cells present.

The theory is advanced that it sets up a form of auto infection with resulting attenuation, or death, as concerns the organism, which in this instance is the tubercle bacillus; the same principle of osmosis inclusive of endosmosis or exosmosis going on in any normal tissue cells present, aided by the saline blood; differences in the specific gravity of the blood and fluid contents of cell keeping up the constant interchange.

Possibly the hypothesis thus advanced may explain the mechanism of anaphylaxis in that the nervous type of tissue cells controlling respiration, heart action, and other vital centres, become involved by having a toxic protein bacterial elaborations—wonderfully compiex—osmosed out into the blood stream. When this amount is augmented by any artificially introduced elaboration protein obtained from the same organism from cultures grown outside of the body it may possibly result in the nervous tissue cells being simply overwhelmed and rapidly ceasing to functionate as a result of the general systemic continuous osmotic process going on; the respective blood and cell elaborations interchange terminating because of the altered specific gravity of the normal cell product and before any inherent adjustment can take place.

Editorial Note.—This is the first of a series of papers by Doctor Manning pertaining to the treatment of tuberculosis, based upon the theory that he has advanced that any serum or remedial agent given by the mouth or intravenously fails to reach the infected tuberculæ area owing to the early destruction of blood and lymph channels ramifying to the lesion.

His next paper will dwell upon experiments made up with the aid of the trocar, or hypodermic needle, used as an electric pole and which enters the apex of the lung (the early and usual site of the lesion) from the shoulder; the iodin and tuberculin being ionized directly into the infection and caseous material through the mouth of the lumen of the tube *in situ*, as compared with injections direct into the pathological field at the points named under high mechanical pressure.

The article will appear in an early number of the MEDICAL TIMES and will be illustrated, in addition to giving the complete technique employed together with any results accomplished.

THE PROBLEM OF THE CRIMINAL INSANE.

From the Standpoint of the Alienist.*

FRANK WADE ROBERTSON, M. D.
New York.

As society has perfected its organization and governments have enlarged the scope of their activities, new problems have arisen, to the solution of which years of painstaking and studious effort have been devoted. In many instances only a partial solution has been possible, but in this fact there is no reason for discouragement, for it is the age old story of real progress.

The revolution in the social conception of the nature of insanity, due to the teachings of medical science, and the recognition that it is a disease and not a demonacal possession, resulted in an enlightened public opinion, which demanded a more humane and scientific method of caring for the criminal insane of this state. It crystallized into legislative enactments in 1855 and resulted in the establishment of a separate institution for this class, which was opened in Auburn, N. Y., in 1859. This institution was subsequently removed to Fishkill Landing and is now known as the Matteawan State Hospital. In 1900 another hospital was opened at Dannemora and an attempt was made to establish a classification which would separate the felons from the others, Matteawan receiving those committed on order of courts of criminal jurisdiction, persons convicted of petty crimes or misdemeanors—not felons—becoming insane while undergoing sentence, and patients from other state hospitals exhibiting criminal tendencies.

In the limited time at my disposal it would be impossible to cover comprehensively a field so broad as that indicated by the title of my paper. I shall therefore confine myself to what seems to me some of its most important phases. That some change must soon be made in the legal definition of what constitutes insanity and irresponsibility no one conversant with the situation seriously doubts.

Section 20 of the Penal Code of the State of New York reads: "An act done by a person who is an idiot, imbecile, lunatic, or insane, is not a crime. A person cannot be tried, sentenced to any punishment or punished for a crime when he is in a state of idiocy, imbecility, lunacy or insanity so as to be incapable of understanding the proceeding or making his defense."

Section 21. "A person is not excused from criminal liability as an idiot, imbecile, lunatic, or insane person, except upon proof that, at the time of committing the alleged criminal act, he was laboring under such a defect of reason as either,

(1) Not to know the nature and quality of the act he was doing; or (2) not to know that the act was wrong.

In this latter section we see the attempt made to determine to whom the act shall grant immunity from punishment.

To the alienist it appears most unfortunate that the law still clings to the old and almost obsolete definition of insanity, formulated in 1843 in the McNaughton case. It is well known to physicians who have examined the insane that there is a large group, particularly in that form of insanity known as paranoia, having a distinct knowledge of the nature of an act committed, and whether such act be wrong. It is particularly in these cases that the "knowledge of right and wrong" does not agree with the present day knowledge of mental irresponsibility as understood from close observation of the insane.

The writer has had several conversations with persons who, beyond shadow of doubt, were insane, who have said practically this: "I could commit any crime, even the capital crime of murder, and I should not be punished for it, as I am insane and am in an institution for the insane, and so am not responsible for what I do. *I have been locked up here because of my irresponsibility.*" While these patients were actually insane, they appeared to be perfectly rational in conversing upon most subjects. A layman, at least, would not discover their insanity, unless some subject closely related to their delusional field was touched upon. There is no doubt that these men had sufficient mental capacity to understand the nature and quality of the acts they were discussing as well as ability to appreciate that the acts were wrong.

The question would have been, had they committed a criminal act, whether they had the power of WILL or FREEDOM of CHOICE to choose between committing or not committing the act. And at this point to my mind, lies the defect in the legal definition or conception of insanity as it stands. If, as the result of disease, there is an impairment of the power of selection, or choice, or will, in the committing of acts, and the influence of some frenzy or over indulgence in stimulants or drugs is satisfactorily excluded, it would seem to be a suitable question for the jury to determine.

*Read before the Society of Medical Jurisprudence, Nov. 10, 1913.

I cannot put the case more aptly than has Mr. Rob't H. Gault in his preface to Tardes "Penal Philosophy" in which he says, "Thus, as long as moral responsibility, the so-called crux of penal philosophy, has its basis in freedom of choice, and as long as we and our experts are inclined toward the scientific deterministic attitude—and as our knowledge grows, we are finding ourselves subject to more and more complex systems of natural and inexorable laws—the concept of responsibility will become progressively attenuated. * * * We are, with the steady increase in the extent of general education and opportunity, slowly elevating the level of individual responsibility."

As crime shows its sociological side so insanity shows its psychological attributes. Whether crime is a sociological, biological or physical condition is still in process of settlement and the followers of each school advance good arguments. However, we must not lose sight of the fact that contemporaneously with the advance in civilization and the more general diffusion of knowledge, society is exacting a greater individual responsibility; and this holds good not only in considering the subject of penology, but is constantly exerting an influence upon experts in mental diseases as they consider the attainments and characteristics of individuals charged with crime.

Not only is it more generally understood by the public that there is a relation between crime and insanity, but as never before an awakened public conscience phenominally sensitive, is demanding punishment for the criminal, and protection to the community from the insane criminal.

Writers estimate the association between insanity and crime at from one and one-half to ten per cent of the whole number of criminals, insanity being five times more frequent among criminals than others. It is much more frequent among occasional than habitual criminals, still I believe that the habitual criminals would prove to be more inferior as a class and that more cases of constitutional inferiority and feeble-mindedness would be found among them upon careful examination. As to sex the relation does not seem to be materially changed; some claim that women under the influence of insanity are more prone to commit serious crimes than are men under the same conditions. The greater number of criminal insane are found between the ages of 25 and 40. Imprisonment unquestionably increases the tendency to attacks of insanity among those of unstable mental poise, because of the solitude and the change in their mode of life. I have found that the criminal insane often present various degrees of feeblemindedness as do the criminals of the latter fully one-third are defective mentally.

Though the insane should not be held responsible for their acts they should be held answerable for them. Therefore when such acts show a criminal tendency they should be placed in an institution for the criminal insane, where they may be kept until it shall be deemed safe for them to be at liberty. Several serious crimes have been attempted in recent years by persons who have previously been convicted of offenses and incarcerated in penal institutions, whose subsequent examination manifested marked symptoms of insanity.

The fact that these men had been released upon completion of their previous imprisonment only emphasizes the importance of carefully examining all inmates of penal institutions and transferring those mentally affected to hospitals adapted to the care of such cases. This method not only secures the attention which the prisoner needs, but it insures his being kept there under supervision until it is safe for him to be allowed his liberty, regardless of the period of the sentence his crime entailed.

There is still another purpose well served by the retention of this class, in that it provides custodial care and deprives them of the privilege of procreation. And here it seems fitting for me to call your attention to one of the most important facts which general research and the recent specific study of the families of delinquent defectives has brought to light. Remembering that a large percentage of the criminal insane are afflicted with a varying degree of feeblemindedness, eplilepsy, insanity and criminality in their antecedents, you will readily understand how important this relationship is when I inform you that the report presented to the last meeting of the American Medico-Psychological Association, by its special committee on Applied Eugenics, among other things stated that "The concensus of opinion from scientific thinkers on Eugenics teaches that the feeble-minded are the result of inherited defect.

"That improvement may be confidently predicted in many, but restoration in none.

"That whether defect be recessive or congenital, the trail of feeble-mindedness is transmitted with certainty.

"That the rate of increase by propagation is more rapid than in normal people, and that the defective class is a self-perpetuating body.

"That the feeble-minded female is about three times as likely to mate as the male.

"That the short life of the fatuous need not be expected to stay the increase of the defective class, because morons, and not they, are the propagators of type.

"No one has been found who depreciates the menace of the feeble-minded in America. Many are surprised at the sudden pending of the evil, forgetting that heretofore they were hidden or destroyed through neglect or disease, as the insane were, until less than half a century ago, but now they are uncovered by census and public care to mature and multiply."

The number of the criminal insane will tend to increase proportionntely faster than the criminal population for the following reasons:

(1) Recognition of mental disease in persons charged with crime, due to more careful analysis of the population of prisons and examination of those before the Courts; by physicians skilled in detecting mental disorders.

(2) Better institutional care, hence the duration of inmates' lives appreciably lengthened.

(3) By aliens—immigration.

(4) Unfavorable character of the forms of insanity which chiefly afflict the criminal insane.

(5) Constant accessions to the ranks of the criminal insane from the great number of the feeble-minded.

The first four of these reasons are well covered and supported in the annual report of the Dannemora State Hospital for the year 1912, in which Dr. North, the Superintendent, states:

"The most noticeable difference, when the diagnoses are compared with those of previous years, is the larger number of cases of dementia precox received during the last fiscal year, constituting about thirty-six per cent of the total admissions. This is an increase of about 6 per cent over the previous year and an 11 per cent increase over the average for the past five years. As this form of insanity rarely terminates in recovery, it

accounts, to some degree, for the lower discharge rate for the year and the consequent increased gain in population; * * * Sing Sing prison and the Elmira Reformatory, * * * send larger numbers * * * due chiefly * * * to the fact that these institutions receive a larger proportion of first offenders direct from the courts, many being aliens, very ignorant, unstable and constitutionally inferior, who, having been recently subjected to the ordeal of trial and conviction, show signs of insanity soon after admission to the prison or reformatory. In fact, not a few who have passed through the courts without their sanity having been questioned prove to have been insane before conviction.

"Of the population of four hundred and fifty-eight September 30, 1912, two hundred twenty-one or 48.2 per cent were foreign born. * * * leaving one hundred eighty-five who are known to be aliens. Of the one hundred sixteen patients admitted during the year fifty-five or 47.4 per cent were foreign born. Of the sixty-one native born there were twenty-six both parents of whom were foreign born, and five having one parent of foreign nativity. The hospital statistics show that the percentage of foreign born patients admitted has steadily increased since the opening of the institution. The fact that the per cent of foreign born admitted during the last fiscal year is due to the fact that native born patients are oftener discharged, there being fewer incurable cases among them and more interested relatives at hand to meet the necessary requirements for release * * * to be cared for at home under suitable conditions."

In the matter of the release of the insane from the hospitals the greatest care is necessary. One frequently hears the opinion expressed that many sane persons are detained in the institutions, yet in my experience I have never known of such a case. It is true that cases are sometimes discharged upon writs of habeas corpus by the judges, and against the advice of the physicians under whose care they have been, but a judge and jury are not fitting instruments for the diagnosis of disease. Personally, I do not believe that any patient of a hospital for the criminal insane should be discharged unconditionally. On the contrary, I believe that there should be guardian societies formed for the express purpose of watching over discharged patients to see that they are placed in proper environment and that their situation be such that there shall be no incentive to return to crime. These societies of guardians could render invaluable service by assisting and supporting them at critical times, perhaps thus preventing recurrence of an attack of insanity.

The after care societies of the state hospital system have been of great service to those patients, and there is no reason why the same measures should not be applied to this class of mental invalids. I feel that at first all releases should be conditioned and limited as to time, that the patient should be actually placed upon parole in the custody of some responsible person who would take the trouble to inform himself at frequent intervals as to the condition, mode of life and general well being of the patient, and finally recommend to the judge release or further treatment in the institution, as the case seemed to warrant. If at present there is no provision in law for such a proceeding, proper legislation should be at once secured to put it into effect.

I believe that my recapitulation may appropriately take the form of a proposition, as follows:

(1) Because the criminal insane are victims of disease and need special treatment and care, they should be sequestered in a separate institution.

(2) That criminality should be the basis of classification.

(3) That the insane who have committed capital crimes should be kept in custody for very long periods.

(4) That all insane criminals should be kept in custody until recovery is confirmed, without regard to the length of time this may require.

(5) That none of the criminal insane should be released without first having been examined and their release approved by a board consisting of three of the hospital superintendents.

There is another great body of dependents, who, while often not exactly insane, within the meaning of the statute, are irresponsible by reason of their defectiveness, and are actual or potential criminals. I may also add that there is very great need for new legislation looking to the recognition and committment to special institutions of the class best described as defective delinquents, or defectives with criminal tendencies.

411 West End Avenue.

LUPUS ERYTHEMATOSUS: ITS DIAGNOSIS AND TREATMENT.

CHARLES F. PABST, M. D.
ASSOCIATE DERMATOLOGIST OF THE BROOKLYN HOSPITAL.
Brooklyn, N. Y.

The word "lupus" is derived from the Latin, meaning "a wolf," and "erythematosus" from the Greek, meaning "to make red." As its name implies, the lesion in this disease is bright red in color, and has a marked tendency to spread. It occurs chiefly about the face, and the arrangement of the patches is symmetrical.

Lupus erythematosus is usually seen in women of middle age. Poor circulation, and superficial inflammation, such as occurs in scarlet fever and erysipelas, are causes which especially predispose. Is the tubercle bacillus the cause of this disease? The organism has not been cultivated from the lesion, and attempts at inoculation of animals have failed, but if the history in each case is carefully taken, the tubercle bacillus is found to play an important part in the etiology. A patient now under treatment gave a family history which was absolutely negative, and she herself had no signs of tuberculosis in any form. This looked like a case in which the tubercle bacillus could not be associated, but on close questioning the patient stated that for several weeks prior to the appearance of lupus erythematosus she had been a constant visitor and attendant at the bedside of a friend, who was dying of pulmonary tuberculosis. In many cases, the patient with this variety of lupus is also suffering from tuberculosis in one of its many forms. The balance of evidence, it seems to me, points to lupus erythematosus as being, first of all, an inflammation of the skin, usually predisposed to by a febrile blood current, followed by the invasion of the tubercle bacillus in small numbers with a tendency to multiply very slowly.

This disease begins with the appearance of a small red patch on the bridge of the nose, or on the cheeks, in the region of the sebaceous glands and hair follicles. More red areas appear, and extend peripherally, finally uniting to form one large patch which desquamates slightly. The appearance is that of a marked

erythema, and is very persistent. It is usually many months or even years before the area involved is very large. This is an important point to bear in mind in making the diagnosis. Sometimes the lesion appears in the scalp and in that event causes a permanent alopecia. A portion of the patch may heal spontaneously, but always results in atrophic scarring. This is another diagnostic point to remember.

The characteristic features, therefore, in lupus erythematosus are:

(a) Its slow course.

(b) The absence of ulceration.

(c) Its appearance in women of middle age.

(d) The red superficial patch with sharply defined borders.

(e) The absence of papules and nodules.

This quickly distinguishes it from psoriasis, eczema, acne rosacea and lupus vulgaris, for which it is sometimes mistaken. Lupus vulgaris is usually seen in a child, and developes into nodules of apple-jelly appearance, followed by ulceration. Tubercle bacilli are present, and can be demonstrated.

The treatment of lupus erythematosus is chiefly local. Internally, however, quinine or arsenic may be given for a short period at a time. Externally, many forms of treatment have been recommended, but the best local remedy to begin with is the following:

℞ Zinci Sulph. .....
Potassii Sulphuret.....āā 3i
Aquæ Camph. .....
Alcoholis .....āā ℥i
Aquæ Rosæ .....q. s. ad ℥iv
M.

This mixture should be applied once or twice daily, allowing it to dry on the face. It acts as a mild stimulant and should always be used before resorting to strong caustics. When these are necessary, as they undoubtedly are in obstinate cases, carbon dioxid snow is the best to use. Carbolic acid, caustic potash and the cautery have been recommended, but have not proved of much benefit. The treatment with carbon dioxid snow is more recent and successful.

Carbon dioxid snow is obtained in the following manner: Carbon dioxid gas is subjected to high compression which converts it into a transparent liquid. This is stored in heavy iron tanks. When the pressure is relieved, by opening the outlet of the tank, sufficient cold is produced to solidify a portion of this liquid carbon dioxid into a snow-like mass. Evaporation in air of this mass, produces a temperature of —90° C. It is interesting to note here the absolute zero is —273° C.

A portion of this snow, the size of a walnut, is applied to a small area of the lesion, for a period between twenty seconds and one minute. It is advisable to begin with an application of twenty seconds and increase gradually, depending upon the degree of reaction. A small area is selected at each sitting until the entire patch has been treated. Little pain is associated with these applications, and the reaction results in a small superficial ulcer which undergoes rapid resolution, and when healed, leaves a white clear skin beneath, and an almost imperceptible scar.

It is not claimed that this procedure will effect a cure in every case, but if this method of treatment is adhered to carefully and persistently, it will prove an advantage over the usual custom of applying several drugs in rapid rotation without success, and pronouncing the case incurable.

396 Franklin Avenue.

PROSTATECTOMY.*

HENRY H. MORTON, M. D.

CLINICAL PROFESSOR OF GENITO-URINARY DISEASES IN THE LONG ISLAND COLLEGE HOSPITAL, AND GENITO-URINARY SURGEON TO LONG ISLAND COLLEGE AND KINGS COUNTY HOSPITALS AND THE POLHEMUS MEMORIAL CLINIC, ETC.

Brooklyn, N. Y.

Exhibition of a Case of Hypertrophied Prostate.

Here is an old friend whom we saw here two weeks ago. It was a case of hypertrophied prostate, which I removed suprapubically, and I merely desire to show you that he is getting along well. He is sitting up and will soon be walking around. The wound is healing nicely.

All the urine comes out through the upper wound. He has passed none through the urethra. This patient is 71 years of age. His present trouble began six or eight years ago, when he noticed that he had to urinate frequently and never felt relieved. A short time after urinating he had a desire to do so again and only a few drops would be passed. This condition became worse, until six months ago the patient noticed he was unable to control his urine at night and frequently wet the bed. There was always a slow trickle of the stream. He never had to resort to the catheter. (Involuntary urination.)

We had this man under observation for about ten days and found he had about forty ounces of residual urine.

There was slight burning during urination. The urinary report gives the specific gravity as 1022, color clear, no albumin, no sugar, no hyaline casts. Later on he passed one hundred ounces a day, but the quantity was gradually reduced. During the ten days he was in the hospital we passed a catheter and drew considerable urine until we had the residual urine down and we then operated on him. Remember those points and we will elaborate on them later.

Exhibition of a Case of Prostatectomy.

The next patient, you will see, is also a case of prostatectomy, which was done a week before this one. The patient is sixty years of age. He was treated in the clinic, and we had him under observation for some time.

The history of the case is as follows: He has always enjoyed good health. His present trouble began eight or nine years ago, when he noticed it was necessary to urinate two or three times during the night, and there was just a slight delay about urination. This steadily and progressively became worse until the present time, when it is necessary for him to get up eight or nine times at night, and there is sometimes considerable delay about urinating and slowness in starting the stream. It is necessary to strain and often a catheter has to be passed in order to obtain relief.

On May 28, the patient came to the dispensary for relief. Sounds were passed and the bladder was washed out. On July 25 operation was proposed and declined. On August 8 the pain became very severe and opiates were necessary. A week later he applied for treatment at some other institution. Since that time he has been very sore over the bladder. They used sounds, and, I think, made a false passage.

Rectal examination showed a moderately enlarged prostate. The residual urine amounted to about 4

*A clinical lecture delivered at Long Island College Hospital, Oct. 23, 1913.

ounces. In this case a perineal operation was done for reasons which I will explain later.

Here we have these points:

Frequent nocturnal urination, so that the patient could not sleep. He would fall asleep and would wake up in an hour and was beginning to run down. The urine was clear, but with frequent nocturnal urination and 4 ounces of residual urine we decided to operate, which we did on September 18.

His trouble now is involuntary dribbling. He has no residual urine.

You will see the perineal wound is healed and the involuntary urination will soon stop. I know of cases which went six months before complete control was obtained.

General Remarks About the Operation of Prostatectomy.

In the first place, we adopt Guyon's classification of hypertrophied prostate. He divided it into three stages:

When it first begins to enlarge he spoke of it as being in the first stage or premonitory period. The symptoms are difficulty in starting the flow of urine insufficiency and disturbance of the stream, frequent calls to urinate, especially at night, which is accounted for by venous congestion of the prostate and trigone, and also by a reflex polyuria. There is no residual urine. The patient will pass as high as 140 ounces a day and a large part of that is passed at night because when he walks around the action of the muscles pushes the blood along and passive congestion does not occur, but when lying in bed congestion takes place and the bladder is more irritable. The firststage might be represented by the second patient we saw here, who had a little residual urine, but was troubled mostly with irritable bladder and frequent urination, particularly at night. There were only four ounces of residual urine, so we might put him in the first stage, just going over into the second.

The second stage is the stage of insufficiency of the bladder. That is characterized by partial retention of urine. On account of this there is an increase in frequency of urination. The patient always feels that his bladder is full and he tries to void and passes a little water, but does not empty the bladder completely and has an unsatisfied feeling. On introducing the catheter, there is residual urine in various amounts, from 8 to 40 ounces. This condition of insufficiency, of the bladder may last for several years. This man passed quite a little water himself, but he never could get it all out. This may run along for several years until a condition of complete retention sets in.

Next comes the third stage or the period of incontinence. The bladder may hold two or three quarts. You palpate a patient's bladder in the office and there is a fluctuating tumor. He complains of the involuntary escape of urine, so called paradoxic ischuria, and you ask him if he is able to pass water. He says, "Yes, too much water." By that he means that the sphincter of the over-distended bladder relaxes. After the bladder has been distended for a while, constitutional disturbance is always set up. There is back pressure on the ureters and kidneys and hematuria. A nephritis begins and pyelonephritis is likely to take place. The urine, by the back pressure, is forced back and the pelvis of the kidney becomes filled with stagnating urine. Micro-organisms enter sometimes from the colon and sometimes from the outside, and an inflammation of the pelvis of the kidney itself, a catarrhal pyelitis ensues, and the inflammation extends up along the tubules and the parenchyma of the kidney is involved in the inflammatory process. We have a combination of catarrh of the pelvis and inflammation of the secreting tubules of pyelonephyritis. Pyeltis and nephritis may each exist alone, but they generally occur together. When that takes place there is an absorption of the toxic material from the kidney and from the bladder, and there is also retention of material that ought to be eliminated by the kidneys because the kidneys are insufficiently excreting and the patient is poisoned with a double poison, that retained by the kidneys and the poison absorbed from the bladder and from the pelvis of the kidneys. Digestive disturbances are set up and there is emaciation, slight fever, a temperature of about 100½, the tongue becomes dry and brown and the patient is drowsy and mentally dull. When this condition runs along for months we give it the name of urosepsis. Anybody familiar with cases of this sort knows that the picture which a patient with urosepsis gives is very characteristic. These old men are not very bright mentally as a result of the absorption, and when they consult a physician they complain not of the bladder nor of frequent urination, but of dizziness and constipation, and but little of the frequency of urination at night. The doctor will give them some pepsin or hydrochloric acid or a bitter tonic and tell them to come around again in a week. Now, if he were to palpate the abdomen and put his finger into the rectum he would find a distended bladder and an enlarged prostate and he would make a diagnosis, but instead of doing that, he simply vacillates, and the condition gets where it is difficult to do anything surgically for the patient.

That brings me up to the question of diagnosis of hypertrophied prostate, in the first, second and third stages. We proceed with the diagnosis in a systematic way. With every man very much over fifty who comes into the office complaining of frequent nocturnal urination or difficulty in passing the urine, the doctor should think at once of an enlarged prostate and should make his examination in a systematic way. The first thing to do is to palpate the prostate through the rectum, and if one is familiar at all with the feel of the prostate he will find the prostate bulging out in most, but

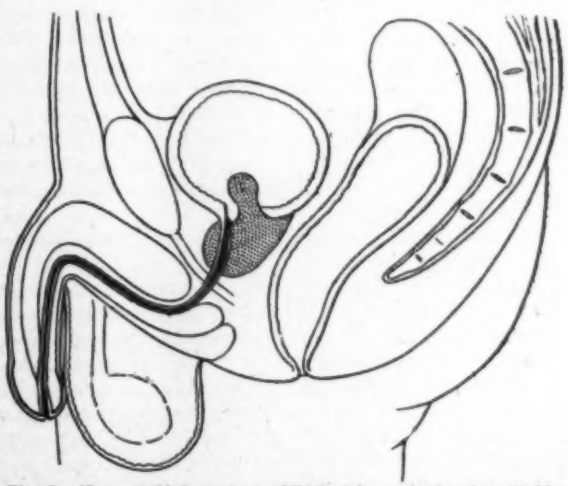

Fig. I. Hypertrophied prostate. Middle lobe projecting into bladder like ball valve. No appreciable enlargment by rectal examination.

not all cases, into the rectum. Next measure the quantity of residual urine. Let the patient pass his water and then introduce a catheter and find out how much urine remains behind.

Next introduce the cystoscope. With it we are able to make a diagnosis of projecting middle lobe, when they do not show by rectal examination. We will have this sort of condition sometimes.

This diagram on the blackboard will illustrate it. (See Fig. I.)

Put your finger in the rectum and the prostate does not seem to be particularly enlarged, but slip the cystoscope in and you will find a great big projecting middle lobe, acting like a ball valve and shutting off the outflow of urine. The enlargement is entirely intravesical and does not project into the rectum at all.

The retention of urine may be complete and the bladder unable to empty itself at all. The patient cannot pass a drop of urine. I remember seeing one such case as that in a man who had been to several hospitals. It was diagnosed as a case of paralysis of the bladder. No one had cystoscoped him until he came under our care, but we discovered a big middle lobe with the cyster cope, took it out, and cured him.

Besides that, the cystoscope enables one to find stones, if they are present. They are very apt to form where we have an hypertrophied prostate because the conditions present predispose to their formation. Then there may be, in addition, a malignant tumor.

I remember one old gentleman whom I saw last year. I kept track of him for several months until his death. He had a large prostate, several stones in the bladder and a malignant growth. None of these things could have been found without the cystoscope. The only point calling attention to the tumor was the hematuria, but he might have had that from his prostate, too, but with the cystoscope we were able to make a diagnosis of stones with malignant tumor. The man was so old that an operation was not done, and he died.

Determine, last, the secreting capacity of the kidneys because they must be able to secrete enough urea after operating. With the strain of the ether and the shock of operation, if the kidneys are badly damaged, they may shut down and the patient will die of suppression of urine.

Testing the secreting capacity of the kidneys is a thing which has been receiving a good deal of attention in the last few years. The first thing we do is to determine the specific gravity of the urine. You will find in these cases that it is low, 1010, or lower, and that the patients will secrete large quantities of urine. When a patient is so secreting with low S. G. he is not considered a very good operative risk, and it is therefore desirable to treat him for a while and get his S. G. up and things working well, and then it is safer to operate.

Another good test is the phenolsulphonethalein test of Young and Garaghty.

One of the other elements which plays an important part in the successful results we are getting today in prostatectomy is the preliminary treatment instituted before the operation. Of course, the great danger in all these cases is from suppression of urine. The kidneys are in a state bordering on acute congestion and any interference with the bladder, shock of operation, or withdrawing the contents of the distended bladder, is enough to throw the kidneys into a state of acute congestion, urinary secretion stops and the patient dies of uremia. We must be constantly on guard against this condition and try and avoid it, and we can do a great deal to avoid it.

The first thing in the presence of a large quantity of urine is to remember that you should not draw the residual urine off suddenly, at one sitting. With a large bladder, distended up to the umbilicus, it sometimes takes a week to draw off the urine. I withdraw a little each day, and in the course of a week the bladder is emptied and the muscular fibers have regained their tone. Then, after the bladder is empty, put in a permanent catheter, through which the patient drains the bladder all the time, and in that way we keep the bladder empty. In addition to that we give urotropin internally. This, you know, is broken up in the bladder and forms formalin, acting as a sterilizer. Urotropin is only active in the presence of acid urine. When you find alkaline urine, there is no use of giving it, because it is not broken up and does not form formalin. If you find the patient with alkaline urine, give the acid phosphate of soda or benzoate of soda, ten grains three times a day. In addition to using the urinary antiseptics, we also resort to bladder washing with nitrate of silver. The preliminary treatment occupies a week or two, until such time as the patient is in shape and the kidneys are beginning to eliminate freely and the urine is cleared up, and then we are prepared to do the operation of prostatectomy on him.

One word as to the choice of time for operating on an old man with a large prostate. Up to twelve or fifteen years ago an old man with an enlarged prostate would ask you if there was anything to be done, and you would tell him that there was not, and that the only thing for him to do was to use a catheter, and that he would die using the catheter, but would die sooner if he did not resort to its use. Today we take a different stand. The operative mortality of prostatectomy has been reduced so low that the danger to life is slight. The reason for the low mortality rate has been on account of improvement in the technic of operation and in the pre-operative and post-operative treatment; so today, where a patient comes to us in the second stage with beginning insufficiency of the bladder and an amount of residual urine and no cystitis and sound kidneys, that is the most hopeful case for operation and the question arising is as to whether we should operate immediately or whether he should go on and use the catheter for years until he reaches the third stage and has to be operated on with damaged kidneys, with urosepsis and a generally broken down constitution. With hospital patients I always advise immediate operation. With intelligent patients of the better class, who are able to think for themselves, I explain the situation.

I say, "An operation can be done now and the prostate removed with very little risk to life. You can get along with the catheter for a few years, but the time will most surely come when the catheter will no longer relieve you, when you will have cystitis, when your kidneys will be damaged, when you will have to pass a catheter every hour or two, when you will bleed after the passage of the catheter and the catheter will fail you, and that time will almost surely come, and may come within a few months or within a few years. Then you will pray for relief; you will take any chance of an operation to relieve you, and an operation

can be done, but at a much greater risk. By taking you now, in the condition in which you are in, sound kidneys, and but little residual urine, the operation can be done with very little danger to life and positive assurance of complete restoration of bladder function."

Now by putting the thing to a man in that way he will say, "I would rather be operated on now," and I think that that is the correct way to look at it.

As to the choice of operation, we have the perineal and the suprapubic operations. As to the election of choice, to my mind, the anatomical formation of the prostate decides the choice. In medicine and surgery things go like the fashions, just like spring overcoats and Easter bonnets. For years the only operation we heard about at all was the perineal operation of Proust-Albarran-Young, a combination of the three men, each one adding something to it. That was the great operation talked about here and on the other side. Today the operation talked about mostly is the operation of Freyer, or suprapubic prostatectomy. As a matter of fact, it is not really Freyer's operation, as it was previously done by Eugene Fuller, of New York; but that is the operation discussed mostly now, and the perineal operation has fallen into the back ground. To my mind, there are two distinct indications for each operation. Each has its place and each should be done under certain conditions.

By referring to the diagram which I draw on the blackboard, you can get the idea I have in mind. (See Fig. II.)

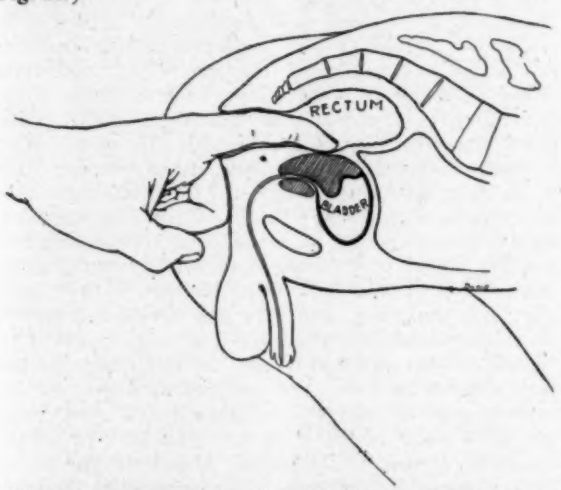

Fig. II. Senile hypertrophy of prostate. Finger in rectum cannot reach upper margin of prostate. Suprapubic prostatectomy operation of choice. (From Morton's Genito-Urinary Diseases and Syphilis, page 320).

In this diagram you will note that the prostate is very large, and bulges up into the bladder, and when you examine it with your finger in the rectum you can not reach the upper margin, which extends far beyond the reach of the examining finger.

If you try to enucleate it through the perineum, you will find it impossible to do so, because you can only reach the lower part, and even when an assistant makes counter pressure above the pubes, he can not crowd the prostate down sufficiently low to make the upper ports accessible through the perineum.

The logical approach then to a prostate of this character is from above the pubes and it can be shelled out of its capsule with great facility by introducing the finger through a supra pubic wound.

On the other hand, when we have to deal with a prostate which is of moderate size, lying low in the pelvis and bulging well into the rectum, and in which we can easily reach and outline the upper margin, that is, to my way of thinking, the ideal case to remove through the perineum, either by a dissecting operation or the perineal finger enucleation. (See Fig. III.)

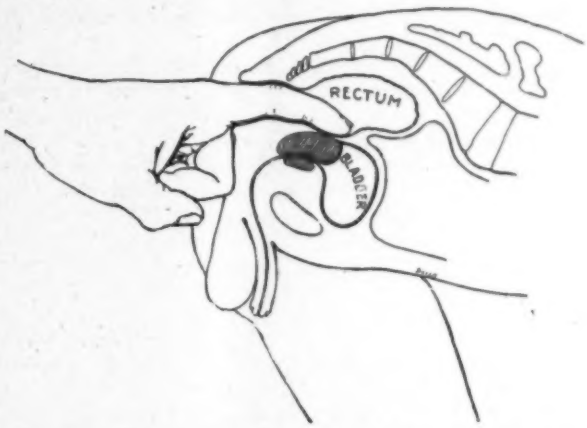

Fig. III. Senile hypertrophy of prostate. Finger in rectum easily reaches and outlines upper margin of prostate. Suitable for perineal intraurethral enucleation. (From Morton's Genito-Urinary Diseases and Syphilis, page 312.)

Personally, I prefer the method of finger enucleation, on account of its rapidity, and by this method we enucleate the prostate from below in precisely the same manner, that it is enucleative when the finger is introduced through a supra pubic wound.

These, then, represent the two classes of prostate in which we should make a choice as to the perineal or supra pubic route, and we find here in the hospital that the method of selection I have just described affords a good practical working rule as to whether the prostate should be approached from above or below.

Of the causes of death after operation, suppression of urine heads the list by a large majority. I suppose seventy per cent of the patients who die after prostatectomy do so of suppression of urine, and before using the preliminary and post operative treatment, which is now universal, the percentage of mortality was much greater.

Shock is prevented by giving the minimum amount of anaesthetic and operating with the maximum of rapidity, and spinal anaesthesia seems to have a definite indication in patients who are not able to stand a general anaesthetic well.

Hemorrhage ought not to cause death. If a patient does bleed it can be controlled by firm packing around the tube in case of a perineal operation or by a tampon of the prostate cavity and bladder after a supra pubic operation.

Speaking of hemorrhage, I would call your attention to the case of cancer of the bladder I showed here a few weeks ago. You will remember how he bled and how we could not control it until we tamponed his bladder anad left the tampon in, loosening it up a little after twenty-four hours, and it was three days before the tampon was all out, but the hemorrhage was entirely controlled. When you begin a prostatectomy you know that in packing you have an absolute means of controlling the hemorrhage right at hand, in case the bleeding should be severe and

it gives you a sense of security and confidence in operating.

Pulmonary embolism happens once in a while and is caused by a dislodgment of a septic clot from the pelvic plexus of the vein. It is carried through the véins to the lungs. It is septic and the patient develops symptoms resembling pneumonia. I have unfortunately seen a couple of cases and I thought at first they had pneumonia.

Gangrene of the suprapubic wound and general sepsis are also causes of death. The wound becomes gangrenous and urine flows over it and lies in contact with the wound. The patient is old and his vitality is low and the tissues have not enough vitality to restore themselves and they become gangrenous and the man dies of sepsis. Other old men have no fever, but they simply fade away gradually and slowly, being four or five weeks in dying. That sometimes happens as a result of general asthenia. The mortality today of all cases of prostatectomy in a big hospital where one has to take everything that comes, many of them being cases treated outside or neglected and sent in to die, as well as those which we are able to select and operate on before going into the second and third stages is about 10 per cent. In selected cases the mortality rate is very much lower, and may be fairly estimated at 5 per cent. It must be considered that we are not operating on young and vigorous subjects, but on old and feeble men.

I hope you have found it profitable for me to go over these things in connection with the patients we have seen.

I have had time this afternoon to go more into details than when we have an operative clinic.

32 Schermerhorn Street.

The Value of the D'Arsonval Current in the Treatment of Benign and Malignant Tumors of the Urinary Bladder Through the Operating Cystoscope.

Leon T. Ashcraft, of Philadelphia, concludes from his experiments and cases that the curative properties of the D'Arsonval current have been established. In benign tumors it is superior to the Oudin current because with it you take no chances whatever. With the Oudin current there is a possibility of feeding the growth. Concerning border line cases, Ashcraft has shown the benefit derived from the D'Arsonval current. In distinctly malignant cases its value remains to be proven. In one case Ashcraft prolonged life and enhanced comfort. Cases cited by Keyes and Pilcher show its value over other methods of treatment. The D'Arsonval current does for tumors of the urinary bladder even more than surgery. As to its value compared with that of radium and fulguration by the DeKeating Hart method, Ashcraft is not prepared to say, since in medical literature he is unable to find any references to their value in tumor of the urinary bladder. A question which must be solved is, "Is tumor of the urinary bladder only evidence of similar involvement of other parts of the genito-urinary system?" It appears to Ashcraft that instances of papillomatous degeneration of the kidney and ureter may co-exist with a similar condition of the urinary bladder.—(*Surgery, Gynecology and Obstetrics,* Nov., 1913.)

The air bubble should be the starting point of cystoscopic examinations.

Special Article

Pneumonia.

At this time of year when the subject of pneumonia is uppermost in the mind of the physician it may not be amiss to note some of the methods of treatment outlined by medical writers.

A. B. Davenport of Columbus, O. (*Lancet Clinic,* Nov. 29, 1913), believes that before adopting a form of treatment it must have had years of successful trial. He notes the various methods that have come and gone and advocates what he terms the middle path, which has largely to do with hydrotherapy. He emphasizes the necessity of fresh air, out of doors if possible, but if the patient is in doors the temperature must not be over 65 degrees F. The bed must be single, the clothing light and warm.

The diet should be made to conform to that necessary to a patient in bed and carrying a high temperature, due regard being paid to the state of the digestive tract. Milk, plain and malted, buttermilk, ice cream, orangeade, fruit juices, custards, beef juice, these are to be given in small amounts and at appropriate intervals. Water should be given freely every two or three hours. The mouth and teeth must receive attention daily. The bowels should be cleared with a dose of calomel when the patient is first seen; this should be repeated as conditions demand. The skin must be kept active, quick cold sponge, followed immediately by a brisk hard rub. This will stimulate the skin and increase elimination as well as reduce the temperature. We do not, as a rule, fight temperature with antipyretic drugs. Combat the initial cause of the temperature rise by a rational line of treatment based upon the pathology and symptomatology of the disease. In hydrotherapy we have an agent that is capable, when properly used, of making profound changes in the different tissues and organs of the body. It is an agent that should be used just as carefully as any of our active drugs, for it is capable of very damaging as well as beneficial results. If hydrotherapy is used intelligently in connection with the other measures and drugs that experience has found beneficial, we need not approach the bedside of the patient with any serious doubts as to a favorable outcome in 95 per cent of the cases.

As a general rule, when the patient is seen during the early hours of the disease, a cold pack or ice bag should be applied to the thorax, anteriorly and posteriorly, if necessary, which will be evidenced by the intensity of the congestion and the degree and elevation of temperature. Generally, the cold pack is applied and removed every fifteen to twenty minutes until a decided impression is made upon the pulse, temperature and respiration, to accomplish which means a continuous renewal for from three to six hours or longer, then, as results become apparent, an hour or more may intervene before another compress is applied; during this time the cold is entirely removed from the body. Cold applications, if too prolonged or too intense, may defeat their own purpose. Reflex stimulation to cold may be maintained by removing the application for five minutes every twenty or thirty minutes, and rubbing the part with warm flannel and applying heat for two or three minutes. If a hot pack is used for ten or fifteen minutes to bring about reaction when the skin shows evidence of diminished sensibility by a cyanotic appearance, a more marked reaction will be obtained. The hot pack increase the supply of blood to the part, while

prolonged cold lessens the blood to the viscus. Increased supply and interchange means less toxemia.

Generally, the patient will ask to have the hot pack removed and the cold reapplied, as it gives greater relief from pain and much freer respiratory action. The patient becomes quieter and usually drops off into slumber after each application. When the temperature drops to below 102 degrees F., the packs or ice bag should be put on at longer intervals, or discontinued altogether for a time. Then it may be advisable to protect the chest with a cotton jacket, although this is not necessary. When the stage of consolidation is reached and we have a distended right heart, the first and second sounds feeble or suppressed, better results will be obtained if a hot water bottle is placed over the abdomen while the ice bag or cold compress envelopes the chest. Through hydrotherapy we expect to reduce the temperature within safe limits, to relieve pain, to slow and deepen respiration, stimulate and strengthen the heart's action by better aeration of the blood through deeper respiratory action, bring about a better interchange in the fluids of the body, due to better respiratory action, and last, a soothing effect upon the nervous system through better oxidation and more active elimination of the toxins generated by the pneumococci, and thereby keep down or eliminate the delirium which is so generally present. The daily use of the sphygmomanometer will give very valuable information concerning the condition of the circulatory system.

Davenport uses few drugs. He depends on hydrotherapy to reduce temperature and increase elimination. Strychnin sulphate is used to guard the heart supplemented if necessary with camphor or aromatic spirits of ammonia.

For the cough, if troublesome, ethyl-morphin hydrochlorid is given to ease, in such doses and at such intervals necessary to relieve, but at no time must it be pushed to the extent of interfering with respiration. Generally, from the beginning of the disease, ammonium hypophosphite in .13 to .20 gm. (two to three grains) doses is given every two to four hours, for its stimulating and expectorant effect.

For the abdominal tympanites he uses occasional catharsis, saline enemas and sometimes intestinal antiseptics. The pleuritic pain is best met by hydrotherapy, however, it may at times be necessary to use an anodyne for temporary relief. Pericarditis and endocarditis are met in the same way as when they complicate other diseases.

Davenport does not use alcohol as he thinks it diminishes sensibility and activity of the cerebral and nerve structures, and its rapid combination with the oxygen of the blood lessens the action of that important fluid in maintaining tissue metabolism and secretion. Moderate daily doses favor the retention in the system of toxic agents both of a chemic and bacterial character. By its action on protoplasm it increases tissue degeneration. It impairs vital resistance to the influences of toxis and other disturbing agents. Etrychnin stimulates all these functions. When alcohol and strychnin are given together the effect is generally a greater tendency to sleep and more shallow respirations and less frequent efforts to cough; a condition that is often deceptive in that it leads the attendants to believe the patient is getting better. When the crisis arrives the portions of the lung not involved in the inflammatory process becomes edematous and with a distended and dilated right heart, cyanosis and cold extremities, the patient too often yields to the unequal struggle against therapy and disease.

He has observed no specific action as yet in serums and bacterins and is not certain the specific of the future will come out of serum therapy.

Davenport has followed the procedure outlined for 24 years and has had a mortality for that period of only seven.

Most of the various methods of treating pneumonia used heretofore have been without clear or rational purpose, remarks L. Kolipinski of Washington, in a paper before the American Therapeutic Society (*Merck's Archives,* Nov., 1913), in which he advocates treatment with a mercury-sulphur combination. He believes that bleeding, aconite, veratrum viride, opium, and oxygen meet no clear or evident indication, but, on the contrary, are directly harmful; while quinine, digitalis, the cold-water bath and pack, and cold air are of equal or more value in other acute febrile diseases, and are doubtless more useful in supporting the patient than in arresting or destroying the disease.

Pneumonias are due to the irritant action of micro-organisms of different kinds upon the lung substance. They are generally inhaled, sometimes carried with the blood or lymph. *Broncho-pneumonia* is usually a secondary or terminal lung inflammation, a bronchitis having introduced it. A specific germ is impossible, but the pneumococcus is often found. The affection is most common in infancy, childhood, and old age, and is the chief dangerous complication of measles and of whooping cough.

Lobar, croupous, fibrinous or pleuro-pneumonia is a specific inflammation of the lung most often caused by the *diplococcus pneumonae.* Other pathogenic micro-organisms can cause a croupous lung inflammation. Infection seems usually to enter through the air-passages.

Lobar pneumonia is found at all ages and is the pneumonia of the prime of life. It is mildly contagious.

The terminations of these pneumonias are variable. The course in some cases is short, in others long; many are fatal.

The symptoms of catarrhal pneumonia in the child are more marked and severe than in the adult. The general condition is grave. The patient is restless or somnolent. There is much fever and a rapid pulse, with a dry, shallow, painful cough, and scanty or no expectoration. The respiration is forced and very rapid, even to 60 or 90 in the minute. The evening temperature is high. The physical signs are: Subcrepitant râles, lessened percussion note, bronchial breathing, and bronchopony. The vital symptom is dyspnea, with death from suffocation or asphyxia and acute heart dilatation.

Croupous pneumonia begins very suddenly, with a severe chill and a fever rising rapidly. In many cases, simultaneously or within a day's time, a severe pleuritic stitch is felt. Cough, inspiration, and speech are thereby suppressed. Accelerated breathing and dyspnea become increased more and more as solidification of the lung extends. The cough is short, shallow and painful, and with much effort the characteristic glary, tenacious, and bloody sputum appears.

Herpes of the lips and nose is often observed, usually in cases the course of which is favorable and tends toward recovery. From the high fever, painful cough, and rapid breathing, the patient sleeps but little, or else is much disturbed at night. Death or recovery with

critical cessation of fever and subjective symptoms occurs within a week.

The chief danger to life in croupous pneumonia is extensive lung inflammation and the resulting diminished area of respiration. This danger is further augmented by all weak states of the heart, such as result from fatty degeneration of the heart muscle, from fibrosis, from the heart lesions of alcoholism, of asthma and of emphysema, and may be accompanied by the degenerative changes of age and arterio-sclerosis. Collapse from heart weakness is a further danger. This collapse, as in typhoid fever, occurs with a rapidly sinking febrile temperature. Kolipinski believes the proper procedure is to absorb or remove the inflammatory exudate, to overcome the septic fever, and from the beginning of the treatment to consider how much additional labor the heart is able to perform. The liquefied exudate must be eliminated by coughing or by lymphatic absorption, and the septic fever by an appropriate systemic antiseptic. The heart must, if necessary, be aided with digitalis.

The class of remedies called stimulating expectorants, with one exception, possess no qualities adequate to fulfill the purpose contemplated, so that in treatment they fall into the place of feeble or fanciful adjuvants. Thus, senega, tolu balsam, copaiba, the oil of turpentine, benzoin, the ammonium salts, and the alkaline iodides are all unequal to the task proposed.

Creosote is the exception. It reduces high fever, strengthens the pulse by slowing it, and has a most pronounced power to stimulate the act of coughing. Creosote, while useful, lacks the force or power to cut short or abort with certainty and uniformity the inflammation.

A number of years ago, Kolipinski noted in several instances of broncho-pneumonia in infants, of tedious duration and with a stationary condition of catarrhal lung inflammation and solidification, with a feeble dry cough, a steady elevated fever, with much weakness and emaciation,—that when mercury bichloride and precipiated sulphur were given in small doses at two-hour intervals by day and three-hour intervals at night, at the end of the second or third day of this treatment the fever disappeared with a rapid but not critical decline, easy sleep returned at night, and the short, shallow cough became paroxysmal, deep, and moist.

Further use of the mercury-sulphur treatment showed it to be as applicable to croupous as it is to catarrhal pneumonia, and at all ages of life. In croupous pneumonia, the rusty appearance of the sputum is not very pronounced under this measure, and the expectoration is much less tenacious and gluey on the following day.

The treatment should be steadily pursued for several days. If, when the thirty-second dose is reached, catharsis has not been produced, ½ ounce of castor oil is given to empty the intestinal tract. Should free purgation and colicky pains result from the mercury and sulphur, the castor oil is equally useful to abate this discomfort.

After the temperature in the evening is normal and recovery begins, the mercury-sulphur mixture is continued for several days longer at four- to six-hour intervals. Should no change in the symptoms and fever appear at the end of the third or fourth day, the treatment has failed, and the cause of this will be found in a complication not previously detected or even in an error in the original diagnosis.

The formula of the mercury and sulphur combination used is as follows:—

℞ Hydrargyri Chloridi Corrosivi.....grn. ss
Sulphuris Præcepitati 5ij
Aquæ Dest. Bullientis.....f. 5iv
M. Sig.: Shake and give quickly in the dose of one teaspoonful every two or three hours.

The prescription at first sight seems incongruous and incompatible, but its originator claims its chemical, pharmaceutical, and medicinal properties are positive and correct.

When it is attempted to suspend precipitated sulphur in water, this is found to be almost impossible. Upon prolonged trituration with water in a mortar, a somewhat better suspension on agitation results. It is only when the sulphur is triturated or agitated with very small quantities of boiling water that it becomes homogeneously diffusible on shaking, though on standing it sinks mostly to the bottom. Thus made up it can be dispensed for practical purposes. Although when the remedy is freshly prepared the mercury salt is ingested as bichloride, which can be readily detected in solution with the ordinary tests for mercuric salts, at the end of a week the liquid shows no mercury in solution. Two grains of sodium chloride preserve the bichloride a much longer time.

This combination has further medicinal peculiarities of its own. Given continuously day and night in the treatment until the desired effect is attained, it does not produce mercurial poisoning, stomatitis, enteritis, or nephritis; for when the gastrointestinal tract has been saturated with it, so to speak, the laxative action of the sulphur begins.

Furthermore sulphur, like potassium idodide, is a reliable chemical antidote in mercurial as well as in lead poisoning.

The pneumonia should never be treated without topical applications of heat and cold to the posterior and lateral parts of the thorax.

Cough is an essential feature of every case of pneumonia that is not a hopeless one. The pneumonic with a cough, however frequent and prolonged it may be, will recover. The pneumonic without cough or with a single, dry, shallow, expulsive effort is in a grave or critical state. Hence any narcotic or sedative drug which produces shallow, rapid breathing and suppresses or represses the cough is harmful and dangerous. The functional power of the heart must be determined early in the treatment. Where valve defects are present, the heart dilated; where the contractions are weak and rapid, irregular or intermittent, digitalis in one daily dose may properly be administered from the beginning. The digitalis effect upon the heart, when once established, must be kept up until the patient is fully recovered and convalescence at an end.

This mercury-sulphur combination treatment is strikingly unique, and it will be interesting to note further reports from different observers upon its action in the hands of competent internists.

Relief of Fainting.

A. A. Hawkins, Pittsburg, mentions a procedure which he first observed in St. Peter's Hospital, London, in 1899. It was the custom of the surgeons then to pass bougies and sounds with the patient standing, and occasionally one would faint. In that case he was seated in a vacant chair beside the surgeon and his head was pressed down between his knees, thus retarding the return circulation and relieving the brain anemia. A minute in this position was sufficient. It renders the horizontal position unnecessary.—(*J. A. M. A.*, Oct. 11.)

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H. SHERIDAN BAKETEL, A.M., M.D.

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NEW YORK, JANUARY, 1914.

An Associate Editor.

The heavy burden of editorial work and increasing medical duties has made the appointment of an associate editor advisable.

Medical journalism is a special field of medicine, to which many feel called at some time in their careers, but in which few are chosen. The work requires peculiar talents and it is apparent to most readers that the successful medical journalist is born, not made.

In choosing Dr. Arthur C. Jacobson, of Brooklyn, for the responsible position of Associate Editor, we obtain the talents of a trained journalist, who has had long experience in the editorial chair. His work as a writer on medical topics has stamped him as a careful observer, a deep and logical thinker, and a forceful writer. His contributions, which have appeared in a dozen different journals, have been characterized by an independence of thought and action which is refreshing, and his editorial expressions possess a particular charm. The average medical journal editorials are of the deadly dull variety, having as their predominant property marked soporific effect.

The Jacobsonian style is bright, alert, even dashing. His topics are of today, of things which interest the broad gauge medical man who finds in life something outside the actual realm of his profession. While the physician is interested in the editorial discussion of scientific medicine, we believe, perchance, unlike many editors, that he likes to note the editorial viewpoint on matters akin to, but not necessarily indissolubly allied with medicine. Dr. Jacobson will contribute, in addition to editorial expressions, a department in which, under the title Miscellant, he will permit his gifted pen full sway to take up any subject relevant to medicine and medical men We can promise the readers of that column a rich treat.

Dr. Jacobson is one of the two general medical officers of the Department of Public Charities in Brooklyn, is busily engaged in practice and is the author of many original articles dealing with subjects of medico-literary interest, among which special mention may be made of exhaustive studies of men of genius whose creative efforts have been in some wise attributable to the psychological excitation of the toxins of tuberculosis.

Freudian Perils.

The disciples of Freud would have us believe that out of their ministrations to psychopathologic types is to come only healing and hope, but we fancy that the development of the new sexual ideas is not to be attended by beneficent results only. The enthusiasts concede no drawbacks, however, and our remarks are addressed chiefly to the general profession and to the special students of the Freudian principles who have not completely lost their heads over a great contribution which, although replete with valuable data, is, nevertheless, fraught with certain menaces. Then there is the danger involved in faulty applications of those of Freud's doctrines which are sound. To judge from the vast literature which is piling up on the subject of psychoanalysis, there is a deal of harm being perpetrated and an enormous amount of diagnostic and therapeutic (?) energy being wasted. The interpretations of dreams and the modes of treatment postulated upon the conclusions drawn are frequently characterized by manifest absurdity. The victims of these ministrations must in many cases finish their experiences more demoralized than ever.

Recently in the *Journal of the American Medical Association* one of the foremost apostles of Freud in America discussed homosexuals who are unaware of their condition, coming for advice, let us say, for impotence with women. He apprises these patients of their true condition and spends six hours a week with each one for six months, analyzing the symptoms and curing those who wish to be cured. It is difficult for us to see how such a course would serve any other purpose than to emphasize defects and intensify morbidity, aside from the demoralization that might well follow the imparting of the information as to the true condition. And then suppose a mistake! The horde of half-baked Freudians who will follow such teachings will work no end of harm. And what is a cure? A homosexual might give up his practices, but that would not constitute a cure. Then the true homosexual cannot expect to be born again sexually, nor would most of them wish to be. If they are so constituted that their happiness depends upon certain sexual contacts, why would not the Freudian who persuades them to take up a life that is not normal to them set up contra-repressions that would make them miserable and ill? If the homosexual is happy and well upon what theory do the Freudians proceed? We must bear in mind that the dyed-in-the-wool homosexual regards the practices of normal men with disgust. To his way of thinking he is the normal type. We are dealing with facts here, whether repulsive to us or not.

It is our belief that the homosexual is not thoroughly understood. Thus we are told by the Freudians that he is attracted by feministic traits in the objects of his attentions, and in the same breath we are informed that

he is averse to women. The latter is true, of course, but we fancy that there is something deeper than feministic concepts in the psychology of the homosexual. Why should he be averse to women if it is the feministic that is sought? This confusion and lack of full understanding fortifies our contention that the Freudians are enacting the bull in the china shop role.

As a mere matter of logic people will be bound to spring up and contend that one way of curing repressions and their evil results is to gratify the repressions. This is inevitable. The Freudians have merely supplied these individuals with a philosophy and a justification.

The Employment of Surgeons by Physicians.

It has come to our attention that there are a number of men in the profession so gifted with business acumen and endowed with capital that they have been able personally to employ surgeons when their patients required operations. A is a physician and has a patient, B, who has a gall-bladder condition which A has decided is surgical. A takes B into his private hospital and employs C, a surgeon, to operate, paying him whatever is mutually agreed upon as a fee. C walks out after the operation and the case continues with A. If further surgical work or counsel is required C is again employed. Thus A finances B through his illness and operation, and later, in making up his bill, includes the surgeon's fee just as he includes charges for Vichy water or champagne. We may well imagine that the patient never knows just how much his actual surgery cost.

We do not fancy for a moment that this method is at all likely to become widespread, for but few men would be able to "get away with" such a program. There is almost something to be admired, however, about men forceful enough to command every situation in their work and able to save themselves from losing their patients in the manner which most physicians must endure when a surgeon appears on the scene. As a matter of business ethics the method described is above criticism. Is it also above criticism as viewed from the purely professional angle?

The Myth of the Needle Man.

The person of average intelligence and some imagination demands food for his delusionary mental meanderings. Aided by a sensational press he is constantly fed with some nonsensical pabulum which has only heated air as a basis.

Just now the hyper- and the hypo-hysteriacs are revelling in the alleged activities of mythical white slavers, who, being at a loss to know how to capture new victims, have resorted to the hypodermic needle as a means of attack. According to the press accounts, curare, hyoscin or morphin are injected into an unsuspecting victim's arm while she is in a theatre, shop, public conveyance or other place where she is surrounded by people. The unfortunate women have been rescued by relatives or friends as unconsciousness, "brought about by the deadly influence of the noxious drug" was stealing over the victim. The women who claim to have thus been attacked unite in declaring they have felt the prick of a sharp point and some have acknowledged faintness, but we have yet to hear of one displaying the well known signs of intoxication from one of the drugs mentioned, nor have we heard that the mythical needle men successfully accomplished their foul designs.

We grant our good friends, the reporters, that these stories are as good space makers. These be hard times, 'tis true, and even a reporter must live. But why not confine his efforts to seeking out the haunts of graft? It is alleged the haunts are many and are not a day's ride from New York City. Or why not take a whack, or several whacks, at poor, old, discredited Tammany? Or berate the high cost of living? Or revive the now partly forgotten Thaw case?

But why work on the hysterical sensibilities of gullible men and women in such a heartless manner? This business is beyond the "good story" stage. It is now a serious matter. Men are afraid to allow their wives and daughters on the streets unless accompanied, for fear they will run afoul of a needle man. It is time the myth takes its place with the other fakes foisted on an unsuspecting and ready-to-be-fooled-again public.

There is no needle man, unless some weak-minded boy, whose mind has been fired by newspaper stories, blunderingly attempts to frighten a girl with a pin or needle.

None of the alleged victims has been able to show that she was really attacked with a hypodermic needle.

None has shown the tell-tale wheal which follows hypodermatic injection.

None has demonstrated that a hat pin in the hat of another woman has not been the "needle."

Physicians know that it would be almost if not quite impossible to inject the contents of a hypodermic syringe into a woman's flesh and only give the sensation of a pin prick.

The needle man and his mysterious poison is pure buncombe, doled out to hysteriacs and now believed by many, who have been impressed by the newspaper accounts. It is high time the papers squelched this nonsensical stuff. As *The World* well says:

"If the popular imagination is to become heated to a point where it discerns an attempt at abduction in every "dizzy feeling" or momentary illness suffered by a woman in a public place, it will be unsafe for a man to offer the slightest civility to any person of the other sex whom he does not happen to know. To assist a woman into a car will subject him to suspicion, and to go to her aid if she faints in the street will render him liable to arrest as a white-slaver."

We must confess to the belief that much of the white slave talk is overdrawn and exaggerated. Many of the victims of the disgraceful traffic are very willing to go and come at the bidding of a stronger will.

Hysteria, we fear, has gone far to permit well meaning people to take the most extreme views of this matter.

Meanwhile, call off the newspaper's "needle man."

Wholesale Eugenics.

Giddings, the Columbia sociologist, has pointed out the probable eugenic bearings and influences of the massacres of the followers of Peter the Hermit by the Mohammedans, just preceding the organized Crusades. The advancement of Europe following the Crusades is commonly ascribed to the contact of the Eastern and Western worlds, but Giddings makes the point that there was a killing off of hundreds of thousands of neurotic defectives, and thinks that we cannot ignore this factor. The weak-minded, emotional and sheep-like masses who followed the fanatical leader were undoubtedly drawn from an element of which Europe was well rid at the time. These massacres were great blessings to the race in the guise of calamities.

Giddings' view is essentially modern, one which could not have been taken until very recently. Such a suggestion would have been regarded as radical, unique and inhuman a few years ago, undoubtedly. This ad-

vanced thinker regrets that large numbers of our defective brethren cannot be induced to-day to set out upon some fanatical quest that would rid us of their presence and care. Well, he needn't worry a bit on that score, for instead of a spectacular massacre we have a continuous killing off through alcoholism, tuberculosis, neurotic degeneracy, etc. It is not at all necessary to get up an unorganized Crusade to the Antarctic. We only think that we differ from European society of the era of the Crusades in respect to decimation of our ranks by folly, disease and economic exploitation. It is truly a wonder that there are so many eugenic problems, considering the way in which defectives are killed off. Some shallow thinkers insist that we are taking care of the weaklings, sheltering them in the most approved Christian fashion. Apparently we are. We wouldn't think of allowing them to embark upon any hazardous adventures, but they die of alcoholism and bad hygiene just the same, and as to any argument that through charitable agencies we are looking carefully after the victims of our social system, let us examine into it a bit.

Enormous sums are expended both by public and private charitable agencies, but who is so fatuous as to suppose that anybody but the poor themselves pay for what they get. Rents, wages and certain other economic elements respond delicately and accurately to the aforesaid expenditures. The point which we wish to make clear is that the burdens of life cannot be and never are really escaped by the masses, so that we in no wise really affect the operation of the law of the survival of the fittest. Seemingly we do, and the concrete instances wherein the law is apparently subverted make us believe fondly in our delusion, if we are nearly enough allied to the defective class to cherish such fancies.

The defectives are being killed off, using the term defective in a broad sense, about as fast as they are being made. There is a massacre going on without which human society would soon reach a sorry state. A high death-rate prevents the prolongation of inefficient lives, with consequent stress on the vigorous class.

Our denial that the law of survival is in full operation is the rankest kind of hypocrisy. To-day, however, it is almost entirely translatable in economic terms. Its brutality, so called, is simply less obvious. In truth, it is still a beneficient eugenic force, and the reasons why men do not change their social order are grounded deep in biologic roots, but we are determined not to admit that the principles of Christianity are not in actual operation. Thus we will not admit that it is easier for employers to contribute toward the building of Y. W. C. A. hotels for working girls than to pay them a living wage. Even such a great thinker as Nietzsche made the error of thinking that men were actually subverting the operation of the law of survival and that Christian doctrines were really practiced. After all, in an ideal State we should to effect with chloroform what is now accomplished by degeneration, disease and poisons such as alcohol; we should then have to murder directly the defectives who now murder themselves or are murdered by us indirectly.

Practical Ethics.

There is a certain every-day phase of ethics to which we think special attention should be called and for violation of which special penalties should be provided. We are not sticklers for hair-splitting in matters of ethics, for many allowances must be made for varying points of view, but we think there can be no question about the supplanting of a practitioner on a case when he has not been paid for his services. This is altogether vicious in principle. Usually the man who is displaced has given the best of his efforts and much of his time, perhaps over long periods, and the fees that he has earned go to the newcomer, who is in a position to demand remuneration, at least at the start of his employment. Cases should not be taken on where a physician has been discharged unless the fact of payment is directly ascertained. This is elemental justice to one another and the simplest form of professional decency. Yet we regret to say that men in ostensibly good standing violate this principle daily.

We also take this occasion to call attention to the eminent consultant who accepts an invitation from the family of a patient to look him over without getting consent from and making an appointment with the attending physician, grandly ignoring his existence altogether. Surely there can be no excuse for this, for the cases concerned are usually such as are necessarily under somebody's care whose identity is easily ascertainable.

The fact has been frequently borne in upon us that the greatest offenders in these matters are the men at the top of the profession, gauged by the standards of the day. It appears to be the "small fry" who conserve the traditions and who are the only ones subject to discipline for infractions. Here as elsewhere special privilege damns one class and protects another.

Many of the evils from which we suffer are traceable to a disregard on the part of the powerful for the interests of the rank and file. Our eminent men should stand staunchly for the best ethical principles and in other ways should justify their stewardship, which we conceive to lie peculiarly upon them. Too many of them take advantage of their prestige to transmute obligation into ruthless predation, borne of primal instinct and selfish snobbery. Their more subtle derelictions often defy a calling to account.

Saratoga's Development.

Dr. Paul Haertl, head of the Royal Chemical and Balneological Laboratory at Bad Kissingen, Germany, spent part of December with Dr. Simon Baruch of New York, who made observations at the prominent health resorts abroad to obtain data for the scientific development of Saratoga Springs by the State Reservation Commission.

Dr. Baruch urged the reservation commission to obtain the counsel and co-operation of the foreign scientist in the final plans for making Saratoga a health resort upon which physicians and the public may depend.

"I am convinced," says Dr. Baruch, "that the introduction of Dr. Haertl's progressive ideas and methods will immensely benefit suffering humanity. I believe his assistance will prove the most important step in the completion of the scheme of developing Saratoga Springs into a great health resort. One million dollars have been expended by the State in the purchase of the mineral water rights and 250 acres of land, which is now being converted into beautiful parks, drives, paths and other ornamental features."

The people of this country will owe everlasting gratitude to Dr. Baruch for his splendid efforts in bringing about the placing of Saratoga Springs upon a proper basis.

The American Association of Clinical Research

JAMES KRAUSS, M. D., Permanent Secretary and Editor.

In this department, to be devoted to clinical re research, it is proposed to present the Transactions of the American Association of Clinical Research, the papers read and discussed at the meetings, such other papers or abstracts of papers as may deal suggestively and effectively with medical and surgical investigations, and to offer such editorial remarks by the editor of this department as may conduce to a proper understanding and consequent acceleration and appreciation of clinical investigations which may truly be termed clinical research.

Nowadays, every investigation is dignified as research, but there is a decided difference between investigation and research. While research is an investigation and more, a re-investigation, a re-examination of facts already ascertained, investigation is only an examination of conditions, the problematic facts of which are to be ascertained. Investigation examines for facts, seeks facts. Research proper re-examines these facts for what is behind the facts.

Clinical Research re-examines clinical facts and seeks clinical principles.

The American Association of Clinical Research.

The fifth annual meeting of the American Association of Clinical Research was held at Hotel Sherman in Chicago on November 7 and 8, 1913, Drs. Frank H. Blackmarr and Alice Conklin presiding.

The scientific sessions consisted of the following program of papers, of the presentation of patients and laboratory products, of stereopticon demonstations and a high order of discussions. The discussions will be appended to the papers as they are published:

1. Demineralization as a Predisposing Cause of Disease.—Rolfe P. Wilson, M. D., Chicago.
2. Colloids and Their Relation to Medicine.—Hermann Hille, Ph. D., Chicago.
3. Are Fibroids More Common in Single and Nulliparae Than in Multiparae? Review of 5,600 Personal Clinical Cases.—Alice Conklin, M. D., Chicago.
4. Further Observations of Indicanuria.—F. C. Askenstedt, M. D., Louisville.
5. Clinical Results of the Administration of the Emanation of Radium. Presentation of Cases.—Frank H. Blackmarr, M. D., Chicago.
6. The Importance of Glandular Infection in Pre-Pulmonary or Incipient Pulmonary Tuberculosis. Roentgen Ray Illustrations.—Jefferson D. Gibson, M. D., Denver.
7. Psychotherapy in General Practice.—Sheldon Leavitt, M. D., Chicago.
8. The Synthesis of Medicine.—James Krauss, M. D., Boston.
9. Energies in Atoms.—E. Stillman Bailey, M. D., Chicago.
10. Some points About Dislocations.—Edgar Byron Smith, M. D., Detroit.
11. The Conservation of the Ovary.—Frank L. Newton, M. D., Boston.
12. Acid Diseases: Causation and Treatment.—Henry Luidlahr, M. D., Chicago.
13. Stereopticon Demonstration of X-ray Therapeutics.—P. S. O'Donnell, M. D., Chicago.
14. Western Medicine in Eastern Lands.—Belle Jane Allen, M. D., Baroda, India.
15. Lantern Slides on Radio-activity.—E. Stillman Bailey, M. D., Chicago.

After a stereopticon lecture by Dr. Frank H. Blackmarr on the Rescue of the Passengers of the Ill-fated Titanic as Viewed from the Carpathia, and motions of apprepciation for the hospitalities and courtesies accorded, the American Association of Clinical Research adjourned to meet in 1914 in Baltimore.

The following are the officers elected for the year 1913-1914: President, Leonard Keene Hirschberg, M. D., Baltimore; first vice-president, Edgar Byron Smith, M. D., Detroit; second vice-president, George W. MacKenzie, M. D., Philadelphia; secretary-treasurer, James Krauss, M. D., Boston; registrar, Jefferson D. Gibson, M. D., Denver; research committee, F. C. Askenstedt, M. D., Louisville, A. R. Peebles, M. D., Boulder, Col., L. K. Hirshberg, M. D., Baltimore; educational committee, Frank H. Blackmarr, M. D., Chicago, H. D. Schenck, M. D., Brooklyn, Ira S. Wile, M. D., New York.

A membership committee for the acquisition of new members is to cover the various sections of the country, and the following list of noteworthy papers was read by title, to be published during the coming year: The Chemistry of Neurasthenia. Original and Most Efficient Currents with the Static Machine. Radium and Radioactivity. Mechanical Procedures in the Treatment of Disease. Clinical Observations in the Treatment of Cancer. Tuberculosis: One of the Burdens of Civilization.

Application blanks for membership may be obtained from the Secretary, 419 Boylston street, Boston, Mass.

DEMINERALIZATION AS A PREDISPOSING CAUSE OF DISEASE.*

BY ROLFE WILSON, M. D.,
MEMBER OF THE AMERICAN ASSOCIATION OF CLINICAL RESEARCH, AMERICAN MEDICAL ASSOCIATION, TENNESSEE STATE MEDICAL SOCIETY, MISSISSIPPI VALLEY MEDICAL ASSOCIATION, ETC.
Chicago.

The first rational, scientific step in the treatment of disease is to find the cause. In a broad and general sense the cause of all disease is a violation, either consciously or unconsciously, of one or more of Nature's laws. But for the sake of convenience, from a scientific standpoint, the cause of disease is said to be made up of two factors, namely, the predisposing and the exciting. It is of the predisposing cause that I wish particularly to speak. My purpose is to show the relation between the absence of the mineral salts in the body and the presence of disease, but first I shall briefly present some facts in regard to the cause of the demineralization of the human body.

Dr. R. L. Babcock, one of the most eminent clinicians of Chicago, stated to me recently that in city dwellers he rarely found the haemoglobin above 90. I believe the prime reason for this is the demineralization of the food put upon the market. Let me give you just a few figures: The average grain of wheat contains 1.75% of mineral bodies, while the finest patent flour, which is so extensively used, contains only 0.44%, which is about one-fourth of the quantity contained in the whole wheat. Unhulled rice contains 4.41% minerals, while polished

*Read at the fifth annual meeting of the American Association of Clinical Research in Chicago, November 7, 1913.

rice, the kind we buy in every grocery store, contains only 0.39%, or less than one-eleventh of that quantity. Brown sugar contains 1.97% minerals, while the most refined suger contains 0.01%, or two hundred times less.

These are only a few of the instances that might be cited of the demineralization of natural foodstuff by man.

Dr. Hermann Hille has recently summed up the situation as to the cause of the widespread demineralization of the human body in these words: "Unfortunately for the well-being of the health of the individual and the human race, the manufacture of foods, as well as of medicines, has been tending more and more to isolation of chemical entities, and our modern methods of 'refining,' 'purifying' and 'improving' the foods which Nature so abundantly furnishes, deprive the natural wholesome food products of most of their mineral constituents and thereby reduce their real food value to a minimum. The human organism receives but a small portion of the nutritive minerals which Nature evidently intended it to have, and the inevitable result is mineral starvation and its dire consequences."

It has been clearly demonstrated by the employees of the United States Government in the Philippine Islands that the disease which raged at one time among the inhabitants, known as Beriberi, was directly the result of feeding them upon demineralized or polished rice, and it was shown by experiments that a concoction made from the huskings and polishings, which are rich in the organic mineral salts, resulted in their recovery. Interesting experiments in connection with this subject are recorded in the *American Medical Association Journal*, February 15, 1913.

Forster has made some most interesting experiments in this matter of demineralized food, and found that in feeding dogs on a diet composed of ash-free fats and carbohydrates and meats from which the salts had been extracted, the animals were in a moribund condition at the end of 26 to 36 days. Howell gives as a reason for this that "The metabolism of the abundant diet aided in increasing the loss of the salts that were already in the body." I would give as a further reason that the demineralized foods were not only non-nutritious and did not prolong life, but under these conditions they acted as agents of toxemia, and actually shortened life.

Starling corroborates Forster and states that "Animals fed upon demineralized food rapidly show distaste for same, become ill and die sooner than if they had received no food at all." He further says: "It is therefore evident that the mineral constituents of the food, although yielding no energy, are as necessary to the maintenance of life as the energy-yielding foodstuff."

I would call your attention to another natural supply of the mineral salts from which man sometimes cuts himself off, and that is water. Dr. Forbes Ross, of London, says: "Mankind is compelled to drink water and to partake of various kinds of food for existence. Water in its natural condition contains large quantities of calcium and magnesium, according to the strata of the earth over which and through which that water flows. These two earthy salts are necessary to preserve the viscosity of the blood, because it is well known that if a population is in the habit of drinking rain water totally free of the earthy salts, various catarrhal affections of the alimentary canal will be prevalent, and much defective bone formation in the young." Further on he says: "When we consider potassium, however, the possibility of this mineral becoming deficient in quantity in the body during life, or becoming deficient as to relative proportion to the other alkalies, and so giving rise to biological disturbances, is not altogether a matter which we can afford to overlook."

In a Southern city recently an enterprising firm largely advertised and sold "distilled water." It did not take the people long to discover that something was wrong. There was an unusual lot of sickness that summer and physicians soon began to advise against the use of the distilled water, giving as a reason to their patients that "It deprives you of certain elements of food that are in the water which Nature provides." In this instance the demineralized water and the demineralized food which is so largely consumed in cities were, together, not long in opening the eyes of even the laity to the danger involved in tampering with Nature's laws and products.

Now, the predisposing cause of disease is universally conceded to be a lowered state of body vitality or a lessened power of resistance, so I wish briefly to call your attention to these conditions so that we may determine what produces them and arrive at one of the fundamental elements that enter into the predisposing cause of disease.

What vitality is in essence we do not know, any more than we know what matter or electricity are in essence. We do know, however, that it is universally manifested in Nature. The features of the subject with which we are at present concerned are its manifestation in individual human life, and the relation it sustains to the health and well-being of the individual. We know that upon the amount of body vitality possessed by an individual depends his power to resist disease. Now the amount of body vitality manifested by an individual at any particular time may be said to correspond to the sum total of the harmonic molecular vibration in the body. Consequently, with the increase or decrease of the harmonic activity of the molecules, there is a corresponding raising or lowering of the body vitality. If, then, we can ascertain what produces molecular activity, we will find the cause of a lowered vitality and lessened power of resistance the predisposing cause of disease.

It is well known that the activity of the molecules is regulated by the process of catalysis, which in turn is engendered by the collodal agents known as enzymes. The enzymes produce a chemical decomposition of the substances taken into the cells by the process of osmosis, and result in metabolism. The important fact in this connection, which is so well known that it may, for that very reason, be overlooked, is that the engendering of catalysis by the enzymes is, primarily, dependent upon the supply, in conjunction with the supply of other substances, of the organic mineral salts. Howell says in this connection: "There can be no doubt, in fact, that each one of the salts of the body has a special metabolic history." Thus it will be seen that it is not enough that only the most prevalent salts be supplied, but that the presence of each salt in proper quantity, however minute, is of vital significance. Professor Chittenden, of Yale University, says that "It is truly important for the integrity and functional power of living cells that the proportion of mineral constituents therein be kept in a constant conditon of quality and quantity." Drs. Albu and Neuberg, of Berlin, state "That smallest quantities of the same (mineral substances) are often capable of producing quite characteristic physiologic effects upon the organism, is sufficiently known from the experiences in human and experimental pharmacology. Although from the small percentage of minerals in the body a small need may rightfully be deducted, nevertheless the importance of this need must not be under-estimated, and just as erroneous, therefore, is the far-spread, quite arbitrary assumption, which may be found in almost

every text-book, that this relatively small need of minerals is usually in the food of man not only fully met, but even surpassed. In the case of a healthy person this is certainly true; it is the very reason why he remains healthy."

Anothor well-known fact which I would not have you forget is the composition of red blood corpuscles. Water 65%, solid matter 35%, of which 33 is pigment haemoglobin (iron), protein 0.9%, cholesterin and lecithin 0.46% and salts, chiefly potassium and sodium. Van Gieson, in his discussion of iron says: "The basic essential element of the red blood corpuscle and that which carries, literally, the breath of life, is iron."

Quoting further from Dr. Forbes Ross, let us not forget that "Blood corpuscles are cells and as such rank as tissue cells just as much as bone or muscle, or brain or liver cells, or any other cell of the body." As to potassium, he says: "Throughout the whole of the life of a tree or an animal a constant supply of potassium is necessary, and any interference with the quantity or quality of that supply has certain definite results." This statement is just as true in regard to the other minerals as it is in regard to potassium. Further on he says: "How important potassium is to the red blood corpuscles, and indeed to all the tissues of the body, and especially the organs of nutrition and secretion, has only to be realized in order to appreciate its vital significance."

Howell says in his 1913 Text-Book on Physiology, in reference to the chemistry of muscle: "These mineral constituents are most important to the normal activity of the muscle in two ways: First, that they maintain a normal osmotic pressure within the substance of the fibers and thus control the exchange of water with the surrounding lymph and blood; second, in that they are necessary to the normal structure and irritability of the living muscle tissue. Serious variations in the relative amounts cause marked changes in the properties of the tissues. They maintain a normal composition and osmotic pressure in the liquids and tissues of the body, and by virtue of their osmotic pressure play an important part in controlling the flow of water to and from the tissues." He also says that "These salts constitute an essential part of the composition of *living matter* and that *even the proteins* of the body liquids contain a definite amount of *mineral,* and if these *minerals* are *removed* their *properties are seriously altered.* He further cites the fact that mineral-free native proteins lose their property of coagulation by heat. He calls attention to the importance of calcium salts in the coagulation of blood and the curdling of milk, and to the fact that calcium, potasssium and sodium salts play a peculiar part in the rythmical contractions of the heart muscles, the irritability of the muscular and nervous tissues and the permeability of the capillary walls and other membranes.

It is well known that an excessive amount of sodium chloride will produce an oedematous condition of the tissues owing to the fact that salt increases the osmotic pressure in the tissues, and in conditions of inflammation of oedema the restriction of the salt in the diet will restore the tissues to a normal condition in regard to their water content.

Liebig says: "In all the processes in the animal organism, digestion, blood making, respiration and metabolism, the mineral constituents, or the salts which are constant components of the blood, the muscles, the tissues and all the organs, as well as of food, take a very essential, and in many cases a directing part; only by their co-operation do the nutritive elements of the foods of man, and the fodder of animals, receive the faculty to serve for the sustaining of the organic processes, and therefore they ought to be taken into account in the explanation of these processes."

The statement has been made that the primary cause of tuberculosis is mineral starvation. This statement will not be disputed by many in view of the findings of Robin, Ader, Boureau, and of Dr. Russell of New York City, who are treating cases of tuberculosis upon this basis and it is said with remarkable success.

Dr. Forbes Ross has made extensive investigations in the matter of Cancer and he attempts to show that the cause of cancer is the disturbance of the proper balance of the mineral constituents of the body.

Further quotations might be given to show that the vitality of an individual is directly dependent upon the supply of the mineral salts, but I deem these sufficient. The absence of the mineral salts in proper quantities is indisputably a cause of lowered vitality.

The power of resistance may be said to be measured by the ability of the leucocytes to perform the function of phagocytosis, and their ability to perform this function is dependent upon their supply of the mineral salts.

In conclusion, I beg to say, that the importance of the mineral constituents of the body can hardly be overestimated. As the mineral kingdom is the basis upon which the higher kingdoms of nature are built, so also, in a purely physical sense, to a more or less degree is the economy of man reared upon a foundation of mineral substance and a diminution of these mineral salts to any extent will result in a lowered vitality, a lessened resisting power, and is an element which enters into the predisposing cause of all pathological conditions.

Medical Editorial Table

The Income Tax.

A physician's income from his professional work differs somewhat from the income of a man in ordinary commercial pursuits. Just as the latter is permitted to credit the legitimate expenses of conducting his business against his gross income, so a physician is privileged to consider as legitimate expenses the up-keep, but not the original cost of an automobile; his expenses for telephone hire, for wages of an office assistant and, if his office be away from his home, for office rent. The question as to his right to charge a certain per cent of his house rental as a proper running expense is one that is open to discussion. On the one hand it may be urged that having his office in his home does not entail any aditional expense for office up-keep; on the other hand the average physician unquestionably pays a larger rental than does the ordinary citizen because he is in a measure compelled to keep up an appearance of prosperity for its effect as a business asset. It would seem only fair that he be permitted to regard at least a part of his rental if he rents, or a percentage upon the value of his property if he owns, as a legitimate business expense. Salaries drawn from City, State or Federal employment are exempted in adition to the $3,000 allowed by the law.—(*Long Island Medical Journal,* Nov., 1913.)

Does Sanitation Pay?

Those infections which interfere with business—typhus, smallpox, cholera, yellow fever, the dysenteries and the malarias—have been the first to disappear from

the world's great trading stations; and they are now practically extinct in those ports where mercantile interests would be in jeopardy or suffer interruption by the detention of vessels and cargoes. International quarantines have been established from humane motives, of course, but very largely also as a help to business. The best examples for home imitation have been set in remote places, through scientific acumen backed by military force. One has only to think of the Canal Zone, Guayaquil, the Philippines and South Africa. Adequate prophylaxis against almost all the infections to which the American people may be prone has now been evolved by medical science; all that remains to be done is to apply the knowledge. As soon as it is realized that vast economic interests are involved in the tuberculosis problem the elmination of that disease from human experience will be a matter of but a generation or so; it were easier, medically speaking, to banish tuberculosis than smallpox, a disease now practically extinct. Just as soon as it is understood that typhoid fever, the American infection, stands for an outrageous and most foolish waste, that disease will pass into the nosological junk shop. The same will apply to pneumonia, the black plague and alcoholism. The light is now being seen with reference to the hookworm disease. Altruism is an essential element in sound and wholesome business, for people who are doing business legitimately are simply busy helping one another, attending to mutual needs and comforts. Any community wanting to be prosperous and to do business with the rest of the world has got to have or to get a reputation for salubrity. Any community that strives to hide its lack of sanitation will ultimately, by the distrust such duplicity creates, ruin its business outlook. The best advertisement for any town is a clean bill of health.—(*Boston Medical and Surgical Journal,* Nov. 13, 1913.)

The Reinspiration of Expired Air.

Crowder has shown that (1) a person remaining quiet and indoors will immediately rebreathe from 1 to 2 per cent of his own expired air; (2) when lying in bed the percentage is higher, rising to from 4 to 10 per cent, depending on the position assumed while sleeping. Nor does sleeping in the open insure pure air for breathing. The same influences here produce the same relative results that they do inside. Then at each inspiration we reinhale not only some of the air just exhaled, but also the air contained in the nose and larger bronchi—the so-called "dead-space" air. We must conclude from these facts that not much importance can be attached to the slight variations in carbon dioxid content which occur in the air of rooms. Efficient ventilation does not depend on the chemical purity of the air, in its freedom from "a toxic organic substance." The new theory of ventilation is of course in sharp contrast to the old. As a matter of fact the air of the lungs always remains highly contaminated with their own excretory gases, and there is an effective barrier in the form of the dead space against the lowering of the contamination. The lungs are ventilated by a very simple principle of dilution. The failure of expensive systems of ventilation based upon the "renewal" of the air by the displacement of a certain volume at regular intervals has been because the essential factors in good ventilation are not freedom from carbon dioxid or from mythical organic poison, but coolness, dryness and motion.—(*Journal A. M. A.,* Nov. 29, 1913.)

The Mortality of Middle Age.

Dr. Louis Dublin, statistician of the Metropolitan Life Insurance Company, offers the following suggestions for the dimution of mortality at the middle ages: We must place even greater emphasis on the municipal control of the communicable diseases of early life in order to reduce the instances of heart and kidney impairments which often result therefrom. We must encourage the movements directed against the spread of venereal diseases as well as the intemperate use of alcoholic beverages. We must further all efforts for the improvement of adequate labor legislation and promote a better understanding between employers and employees. This program will include the improvement of factory sanitation, the medical examination of employees, and the instruction of both employers and employees in industrial hygiene. It will be necessary to supplement labor legislation with the careful examination of death certificates to see that in every instance those who are responsible for preventable deaths are properly prosecuted. Finally, we must heartily encourage the movement for public education on all topics connected with personal hygiene that there may be better cooperation between physicians and their patients and that there may be no unnecessary losses through neglect of symptoms pointing to serious organic diseases.—(*Medical Record,* Nov. 15, 1913.)

Quinin and Rabies.

The Pasteur treatment of rabies has certain weak points. While effective as a preventive it must be employed before the infective agent has had opportunity to develop, and it requires some days before protection can occur in the inoculated person. If the patient has already developed symptoms of the disease nothing is gained by using Pasteur's method. Inasmuch as rabies is an infectious disease, a living agent of some description must be present. By many observers this is thought to be protozoan in character. With this as a basis, Moon tried out the action of quinin on dogs that were inoculated with rabid brain material and were allowed to develop active symptoms of rabies. Quinin was then administered internally in large doses, equivalent to from twelve to eighteen grammes daily for an average man. The medication was pushed to the limit to secure the full physiological effect, one bordering on the toxic. As a result three untreated animals died, while the three treated ones recovered. Report also comes that this method has been employed successfully in one case of a human being.—(*New York Medical Journal,* Nov. 15, 1913.)

Typhus Fever.

A typical case of typhus fever in a girl who had been living for months on a suburban farm is recorded by H. H. Newman, Washington, D. C. The case, he says, was puzzling to the physicians for a time and various diagnoses, typhoid fever, scarlet fever, measles, cerebral spinal meningitis, and Henoch's purpura, were offered. He says that his experience in this case leads him to agree with the recently offered view of Dr. J. F. Anderson (*J. A. M. A.,* July 14, 1913, p. 1845) that unrecognized typhus is not infrequent in our cities and may become a serious danger. Newman hopes his case will incite others to watch for similar ones that are liable to be overlooked.—(*J. A. M. A.,* Nov. 1.)

APPLICATIONS OF SALVARSAN IN NON-SYPHILITIC DISEASES.

W. M. BARTON, M. D.,
ASSOCIATE PROFESSOR OF MEDICINE IN THE MEDICAL DEPARTMENT OF GEORGETOWN UNIVERSITY.
Washington, D. C.

In view of the tremendous enthusiasm which marked the introduction of salvarsan three years ago, it is not surprising that attempts were made to apply it to the treatment of diseases other than syphilis. To discover how far these efforts have so far been successful is a matter of some interest to every practitioner.

According to Toneff[1] the diverse affections in which dioxydiamidoarsenobenzol has been employed outside of syphilis may be divided into three categories.

First—Diseases which are due to protozoal affections of the organism, that is to say, diseases which are zoologically but not pathologically related to syphilis. It was indeed by means of studies upon a protozoal infection (typhus recurrens) that Ehrlich and Hata were enabled to discover and demonstrate the effects of the remedy.

Second—Diseases which are generally regarded as being amenable in varying degrees to treatment by arsenic, and in which it seemed entirely logical to try the effects of salvarsan and in which other organic compounds of arsenic had been tried.

Third—A heterogeneous group of diseases in which the chief incentive for using salvarsan resided in the fact that treatment with other drugs had failed and in which the use of salvarsan was purely empirical.

Almost all known protozoöses have been treated with 606 and the general result seems to have been that the nearer the disease is related to a spirillosis the more effective is the treatment and vice versa.

The principal protozoal infections outside of syphilis which have been subjected to treatment by salvarsan, are as follows: recurrent fever (a spirillosis), framboesia, angino-stomatitis Vincentii (both spirochaetoses), spillary balanitis, trypanosomiasis, malaria, filariasis, bilharziosis, Oriental button, kala-azar and aviary spirillosis.

The application of 606 to the treatment of the spirilloses may be regarded as marking an epoch in chemotherapy, because the results obtained were those of scientific inductions put to the severest tests of critical laboratory investigations. The clinical results verified these findings to a large degree and it is now conceded that we have in the action of salvarsan upon the spirilloses (and to a less extent upon other protozoal infections) a splendid example of elective aetiotropism.

Salvarsan may be regarded therefore as a specific treatment for recurrent fever and this is more than can be said of its action in syphilis because in this disease, although the treponemicidal effects of 606 are very great, it is still impossible to entirely rid the organism of the treponemata by means of the drug.

Iversen[2] in 1910 was the first to use salvarsan in the treatment of febris recurrens. Since that time many reporters from various localities have unanimously testified to its efficacy. At first small doses were given and proved ineffective. It is now definitely demonstrated, that in order to avoid immunization of the micro-organism, with production of resistant strains of spirilli and consequent relapses, the same dose should be given as is administered ordinarily in syphilis, namely, 0.6 gm. The drug should be given intravenously. Administered in this manner salvarsan is a true specific in this disease.

The treatment of framboesia with 606 has been almost as successful in its results as that of recurrent fever although the number of cases reported up to the present time is not so large in the former.

The scientific basis for the treatment was established by experiments conducted at the Rockefeller Institute by Nichols[3] in which spirocheta pertenuis was inoculated into rabbits and the animal treated with salvarsan with excellent results. The treatment was first applied to human cases by Strong[4] in Manila. Ehrlich[5] states that a hospital in Surinam containing three hundred beds devoted to the treatment of framboesia has been closed because all of the patients have been cured.

Vincent's angina was first treated with salvarsan by Ehrlich who applied the drug locally to the lesions. It was found to be exceedingly efficacious and entirely harmless. Several authors have since confirmed the results first obtained. The drug is applied by means of a cotton tampon soaked in glycerin. The treatment of non-specific stomatitis with 606 has also met with some success, notably in mercurial and scorbutic cases.

The results of treating sleeping sickness (trypanosomiasis) with 606 are as yet undecided. In the laboratory artificial trypanasome infections in white mice have been found to be uniformly and rapidly cured by the drug by Yakimov and Yakimova working in Pasteur Institute, but the number of human cases thus far treated has been too limited to allow of any definite conclusions. The final results are *sub judice* though they appear to be very encouraging.

The same may be said at the present time in reference to the results obtained with 606 in the treatment of filariasis, bilharziosis, oriental button and kala-azar. Here the number of cases treated is altogether too few to admit of final conclusion.

Unfortunately the results obtained in treating malarial infections with salvarsan have been rather disappointing. It seems to have been efficacious in some cases of tertian intermittent fever, but results have certainly not been in any degree as brilliant as might have been expected *a priori* from a consideration of the high favor in which arsenic has always been held in the treatment of malaria. Nevertheless some writers report favorable results in cases resistant to quinin. Breast diseases of horses and epizootic lymphangitis or African glanders, according to Ehrlich can be cured by one injection.

With regard to the use of salvarsan in that small group of diseases in which arsenic has been generally considered especially efficacious, in which therefore the substitution of arsenobenzol for other types of organic arsenic, and for inorganic arsenic seemed rational enough, it cannot be said that the newer drug has developed any marked superiority.

In pernicious anemia salvarsan has been found to be not only useless but strikingly harmful so that its use in this disease is to be entirely avoided. Several fatalities have been reported.

In the treatment of chorea the results have been more favorable. It is only to be thought of in the intractable cases, which have resisted ordinary treatment.

Psoriasis has been treated with 606 with doubtful results.

This leaves us with the general conclusion that in those diseases in which arsenic, particularly inorganic arsenic, as in Fowler's solution, has been found efficacious, the substitution of 606 is no advantage whatsoever except in intractable chorea, and that in pernicious anemia the latter drug is to be carefully avoided.

The purely empirical applications of 606 include its use in cancer, typhus fever, smallpox, pus infections, Malta fever, epilepsy and leprosy, for in all these diseases it has been tried. In malignant tumors salvarsan

has been found to be devoid of any beneficial action, whatsoever and the same may be said unfortunately without any qualification whatever in respect to its application to the other diseases mentioned. It may be said in conclusion that outside of syphilis the uses of 606, while rather limited, are important. Even in syphilis it may be remarked parenthetically that the new arsenic bearing compounds, salvarsan and neosalvarsan, which stand as monuments to the genius of Ehrlich and his co-workers, are nevertheless to be still regarded, not as succedanea but as subsiiarii to mercury in the treatment of this disease. Ehrlich himself in his most recent publication[5] shows himself as favoring some sort of combined therapy.

In recurrent fever 606 is, as we have seen, a true specific. In Vincent's angina it is the most effective treatment. In intractable chorea it should always be considered. In framboesia and trypanosomiosis it offers the best means of treatment at present available. In malaria, cancer, epilepsy, kala-azar, typhus and pernicious anemia it is either very doubtfully useful (malaria), useless or positively harmful (typhus and pernicious anemia).

[1]E. Toneff. Action Therapeutique du 606 en dehovs de la Syphilis. These de Montpellier 1912.
[2]Iversen. Münch. Med. Wchuschr. 1910. No. 15.
[3]Nichols. Rockefeller Inst.
[4]Strong. Med. Mch. 14 Feb., 1911.
[5]Ehrlich. Chemotherapy 17 International Congress of Medicine, 1913, and London *Lancet*.

WHAT IS THE MEDICAL STATUS OF THE GUM CHEWING HABIT?

T. H. McClintock, M. D.,
ASSISTANT GENITO-URINARY SURGEON TO THE HOUSE OF RELIEF OF NEW YORK HOSPITAL.
New York.

It is a little difficult to state positively the origin of the chewing gum habit. In this country for generations some people have been in the habit of chewing something. Gum chewing doubtless is the offspring of the habit of chewing tobacco. The young are naturall imitative, but as it is a "man's job" to chew tobacco, they necessarily resorted to something which has no back fire or penalty attached to it. Originally it was spruce gum, tar, checkerberry leaves or the soft bark of trees, until someone saw the commercial value of some flavored sugar, and sugar knows no age nor sex.

When it was discovered that the sap of the chicle gum tree made the best possible base, the manufacture of gum became a real industry, and has grown to enormous proportions, as is evidenced by the importation during the past year of about eight million pounds of chicle gum, the finished product having a market value of over $34,000,000.

It is easy to see thta we are a nation of chewers. It is an American habit and an American industry, and kept alive by the hundreds of immigrants landing here every day, who adopt it in their process of evolution, and thus become the largest asset of the gum manufacturer.

It would probably remain more of a social question than a subject for medical discussion were it not for the manner in which it is advertised by some of the selling agents. They make their strongest appeal on a purely medical basis. Their chief claim is that it is an aid to digestion. They also present it as an assistant to oral hygiene. If it confers such benefits to mankind we may wink at any reasonable stretch of the advertiser's imagination, but if this form of advertising is fraudulent, the medical profession should take heed, and the general public ought to be advised.

Chicle gum, the base of chewing gum, is collected in Mexico and other tropical countries. Of the manner of its collection, I cannot do better than to quote from an article by Geo. F. Behringer (*The Practical Druggist*, Aug., 1913): "The sweet, sticky nature of the sap attracts and holds countless insects, creeping and flying, after the manner of a strip of flypaper. The native gatherers of the sap are not unduly solicitous over the presence of insects or extremely careful to avoid including pieces of bark and leaves for they are paid by the pound."

This quotation would mean little to us if we were sure that the gum is purified before being placed on the market; but to continue: "Take at random, a piece from each package, wash off the sugar and hold the piece to the sunlight. In every case will be seen particles of dirt." And further: "So that every man, woman and child user of chewing gum, is for the time being, a walking washing machine."

Quoting from Prof. Wm. Mansfield of Columbia University in the same issue, we learn that: "To-day the users of chewing gum are the refining machines. They swallow the refuse and about the time the gum is thoroughly clean and pure it is thrown away."

So much for the manufacturers' opinion of the general public. We have very little to say about oral hygiene. The people who are particular about keeping the mouth in a healthy and sanitary condition do not rely upon the use of gum; many do not even use it, while others, who chew it daily have mouths, which to be polite, are at least unattractive.

The manner in which it aids digestion is hard to explain, while there are many good reasons why it can exert no particular influence over that process. It cannot aid salivary digestion for obvious reasons. With even a moderate effort given to mastication, the salivary enzymes produce all the effect on starch that nature requires. Mastication is mostly useful as a process of trituration and lubrication.

There is no evidence that salivary digestion continues to any considerate extent, after the food reaches the stomach. Gastric secretion is quickly stimulated by the anticipation of food, and the acidity of the gastric contents soon inhibits the action of, or destroys completely, the salivary amylase. There is, undoubtedly, a certain amount of salivary digestion continued in the stomach previous to the complete admixture of food and gastric perments, or possibly a slight amount owing to the lessened inhibitory action of combined hydrochloric acid, the product of protein hydrate; but this is only a possibility, and to what extent it proceeds is as yet problematical. Therefore, if gum chewing is going to aid gastric digestion by a further addition of salivary amylase, there is no time to lose, and one must labor diligently for a short time.

The act of chewing does stimulate gastric secretion, but after a meal the appetite is appeased, and no form of stimulation to the gastric mucous membrane can equal that of food in actual contact with it. Moreover, the nervous reflex governing gastric secretion is sufficiently sensitive to accommodate itself to the amount and kind of protein substances with which it has to deal. It is possible that some brands of chewing gum do contain a trace of pepsin. If so, the most that can be said of it is that it does no particular harm.

The greatest amount of chewing is done between meals, when gastric digestion is well along toward completion and the stomach contains sufficient free hydrochloric acid to destroy whatever salivary enzymes may reach it at that time. It is extremely doubtful that the

chewing process can influence intestinal digestion. There is no physiological evidence to give it even a slight possibility.

Therefore, the act of chewing gum has no particular influence over any digestion process, nor does it, in any other way especially benefit the health. To advertise that it does is to take an unfair advantage of the public in its ignorance of physiological process.

Most of the chewing gums on the market are unclean products from unclean sources and unless the raw material is purified, an unclean habit results; the total of their use being the ingestion of organic debris and some overworked salivary glands. If one desires to chew gum he should see to it that the product is one which is absolutely clean and pure, conditions which can easily be demonstrated.

12 Fifth Ave.

THE TREATMENT OF CHRONIC BRONCHITIS.

J. EPSTEIN, M. D.

CLINICAL ASSISTANT IN MEDICINE, VANDERBILT CLINIC, AND IN DISEASES OF CHILDREN, MOUNT SINAI HOSPITAL DISPENSARY.

New York.

The successful treatment of chronic bronchitis depends on a thorough knowledge of the various etiological factors and pathological changes that tend to affect the bronchial tubes. Patients should be individualized before treatment is begun.

In chronic bronchitis there are always affected bronchial tubes, and, in many cases, a weakened cardiovascular system. When to this low grade bronchial material some local difficulty of the upper respiratory tract is added or some systemic disease is present, a bronchitis will be set up which will last as long as the associated diseased condition exists.

The starting point which will lead to a chronic bronchitis may be one of the following:

(1) Diseases of the nose and nosapharynx.
(2) Repeated attacks of acute bronchitis.
(3) Pulmonary tuberculosis.
(4) Nontubercular diseases of the lungs and pleurae.
(5) Diseases of the heart.
(6) Inhalation of irritating substances.
(7) Auto-intoxication.
(8) Constitutional diseases, such as gout, syphilis, diabetes mellitus, nephritis, rickets or scrafulosis.

The diagnosis of chronic bronchitis is comparatively easy, but the physician must also determine the associated or primary disease which keeps the bronchi in an unhealthy condition. Without a diagnosis of the contributory factors treatment may be of little avail.

The rational treatment of chronic bronchitis may be divided into:

(1) Treatment of the underlying disease.
(2) Treatment of the patient.
(3) Treatment of the bronchitis.

The first and most essential step is the entire elimination or the possible improvement of those factors which maintain the bronchi in a constant state of irritation and congestion.

If the upper respiratory passages are at fault they should receive proper treatment. Repeated attacks of acute bronchitis may be prevented by proper hygienic measures with hydrotherapy and tonics. Pulmonary diseases must receive careful attention.

If the chronic bronchitis is associated with cardiac disease there will be congestion of the bronchi because blood from the bronchi return to both sides of the heart; that of the larger bronchial veins to the right side of the heart, while the venous blood from the smaller bronchi passes to the pulmonary veins and to the left side. Inefficiency of action of either side affects the bronchi. In taking the history of the patient, his occupation may be found to be a constant source of bronchial irritation. Such conditions must be removed before treatment is attempted.

Nephritis, if present, must be properly treated. Auto-intoxication and constitutional diseases when complicating chronic bronchitis cause serious trouble.

Next in the order of treatment comes the patient himself. He must be treated as well as his disease. He should be kept away from a cold, wet or foggy climate. In cold weather he should wear light, but warm, clothing, to prevent congestion of the bronchial mucous membrane. Outdoor life is to be recommended, and if possible the winters should be passed in a warm climate. Nutrition must be carefully kept up. The excretory organs must eliminate properly. Suitable hydrotherapeutic measures are of great value. An occasional prolonged warm bath will soothe a bronchial irritation. A cold compress properly applied to the chest and kept over night will relieve internal congestion. Tonics are very useful. Strychinin, arsenic, iron, quinine, and the hypophosphites or the glycerophosphates of lime and soda should be given. Sodium iodide in small doses given for some length of time is valuable, perhaps, by its stimulation of the thyroid. Cardiac tonics must never be neglected. In all cases of chronic bronchitis the heart is under a special strain in its effort to overcome the increased pulmonary resistance, due in most cases to an associated emphysema. A few drops of tincture of digitalis or strophantus, three times a day after meals, will aid materially both the heart and the bronchi. A good working heart will force through the lungs a good supply of blood, which is of the utmost importance in maintaining the bronchi in a healthy condition.

With the removal of those causes which keep the bronchi in a lowered state of vitality and with an improvement of the general condition of the patient, the bronchitis will usually take care of itself. If necessary to control a troublesome cough, ¼ grain of codein or a 1-12 grain of heroin every 3 to 4 hours will be sufficient. If the expectoration is profuse and fetid, creosote or guaiacol or their salts may be given with good results. Pure beechwood creosote, 1 to 2 drops in one quarter of a glass of warm milk, taken three times a day after meals, is perhaps the best and most effective way of giving creosote. One dram of beechwood creosote to one ounce each of tincture of gentian comp., tincture of cinchonae comp., and glycerin makes a nice mixture. The dose is a teaspoonful in milk three times a day after meals. Terpin hydrate in four to five grain doses, three times a day after meals, helps in some cases.

For an antiseptic inhalation soak a piece of absorbent cotton or blotting paper in a teaspoonful of the following mixture: Creosote, oleum pine sylvestris, eucolyptol, and oleum terebinthini rectificati of each two drams and alcohol up to two ounces. This should be placed in a saucer and kept in the patient's bed room over night.

225 Henry Street.

Tuberculin is of value to aid in the diagnosis of obscure lesions of the uro-genital tract.

Oil-Ether Anesthesia.

J. T. Gwathmey of New York, president of the American Society of Anesthetists, has devised a method of ether administration which is highly recommended by surgeons who have employed it. It is oil-ether colonic anesthesia and is an evolution from intravenous anesthesia. He uses a mixture of olive oil and ether, two ounces to six. His technic as described (*New York Med. Jour.*, Dec. 6, 1913), is simple: The patient lies in bed on the left side in the Sims position. A small catheter, well lubricated, is then inserted three to four inches within the rectum; to this catheter a funnel is attached. The mixture should be poured slowly into the funnel, at least five minutes being consumed in administering eight ounces. It is best to withdraw the tube when the patient is partly unconscious and the muscles are relaxed. From five to twenty minutes (according to the percentage used) should be allowed for the anesthetic to take effect, before the patient is moved. The patient should then be carried to the operating room. The anesthetist at this time should see that a clear airway is maintained when necessary, by placing a finger under the symphysis of the lower jaw. If the patient shows signs of approaching cyanosis, loss of lid reflex, stertor, or embarrassed respiration of any kind, two or three ounces of the mixture should be withdrawn by the small rectal tube already mentioned, placed four to six inches up the rectum. If the breathing is easy and regular, with the reflexes active, the patient will be found to be relaxed and in surgical narcosis as far as the operation is concerned.

At the end of the operation, the two small rectal tubes should be placed in position, as high up the colon as convenient without traumatism, and cold water soapsuds injected into one tube and drawn off through the other; two to four ounces of olive oil should then be introduced into the rectum and the tubes withdrawn. The patient should be returned to bed, with as little jolting or handling as possible, the room should be darkened, and free ventilation secured.

In some of the cases mentioned novocain was injected locally at the site of the operation after the patient came on the operating table. In other cases no local anesthetic was used. Where a local anesthetic is used at the site of the operation, and the ether is administered by the oil-ether rectal method of injecting, every principle of anoci association as enunciated by Crile will be fulfilled, and the patient awakes quietly, without nausea, vomiting, or pain, the analgesia continuing for some time after consciousness is restored.

The advantages claimed for this method of anesthesia over other methods are:

1. The element of apprehension and fear caused by placing a mask over the face in inhalation anesthesia is avoided.
2. No expensive apparatus is required.
3. The after effects of the anesthetic are reduced to a minimum.
4. A more complete relaxation is secured than with any other known method of administration.
5. The limits of safety are widely extended, compared with other methods.
6. A more even plane of surgical anesthesia is automatically maintained than is possible by any inhalation method—unless administered by a skilled anesthetist using a perfected apparatus.

These propositions have been demonstrated in about one hundred cases, the ages of the patients ranging from four to seventy-one years. In most of these cases careful blood and urine analyses were made before and after the operation. The blood pressure is taken during the operation. Some of the patients were also carefully examined with the proctoscope, to note if any inflammatory disturbances followed the anesthetic. None of these examinations showed any contraindications to the method.

Patients who had been previously anesthetized by other methods and who were capable of making an intelligent comparison, expressed themselves most enthusiastically in favor of oil-ether. In two instances of delayed necessary operations, this form of anesthesia so appealed to the patients that all objections were overcome.

In children of four to eight years of age, a fifty or fifty-five per cent solution of ether in olive oil has been easily retained, without any preliminary medication, and has been followed by satisfactory anesthesia in ten to twenty minutes. The low percentage absorbed by children is contrary to laboratory experiments, as the oil does not part with the ether in fifty per cent solutions in a test tube placed in a water bath at the temperature of the body. The difference in the power of absorption from the lower bowel in children and adults would satisfactorily explain this. In adults, eight ounces of ether, with an equal amount of oil, was placed in the rectum with no anesthetic effect whatever.

Two case reports show Gwathmey's technic.

Case I. Boy, aged ten years; operation for hydrocele, and circumcision. One-twelfth grain sulphate of morphin was given hypodermically thirty minutes before the operation, and a five-grain chloreton suppository at the same time; between 75 and 100 Cc. of a 75 per cent. mixture was introduced very slowly, the patient falling asleep before the full amount was introduced, sleeping quietly through the operation, and making an uneventful recovery.

Case II. On November 18th a woman, aged thirty-eight years, weight 125 pounds, was operated upon at the Presbyterian Hospital by Dr. Forbes Hawkes for carcinoma of the breast. The patient was given one-sixth of a grain of morphin and one one-hundredth of a grain of atropin hypodermically; five grains of chloreton, dissolved in two drams of ether, and mixed with two drams of olive oil, were introduced into the rectum thirty minutes before the operation. Eight ounces of a 75 per cent. mixture was introduced into the rectum in six minutes' time. The patient was in surgical anesthesia four minutes after the total mixture had been introduced. Three ounces were drawn off during the operation, as the patient seemed to be too deeply narcotized. The resultant anesthesia was perfect in every respect, the patient breathing quietly as in natural sleep during the entire time of the operation. An uneventful recovery with no nausea or vomoting followed. Blood and urine analyses proved negative.

That this method of administration must be carefully watched is evidenced by this case.

Case III. Man, forty-seven, weight 160 pounds; excision of the tongue, floor of the mouth, and glands of the neck. On account of adhesions and abnormalities, resulting from a cancerous growth, this operation lasted nearly three hours. He was given one-quarter grain of morphin with one one-hundred-and-fiftieth grain of atropin hypodermically, half an hour before the operation, and ten grains of chloreton in a suppository at the same time. Eight ounces of a 75 per cent. mixture of oil and ether was administered. The patient dropped to sleep almost immediately. At the end of one hour the pulse was full and regular, but there was stertor which perceptibly increased until respiration ceased for three minutes. The rectum was washed out with cold water, and as much as possible of the mixture was withdrawn. Respiration recommenced without anything else being done, and the operation was continued and completed without further interruption. When the patient was returned to bed the pulse was 72 and the respiration normal. This patient also made an uneventful recovery, with no nausea or diarrhea following.

The method is especially indicated in bronchoscopic work and in operations upon the head and trunk; also in cases of Graves's disease and similar conditions,

where the element of fear is a dominant factor. It may be positively asserted that the ether is not so irritating when given in this way as by the usual inhalation method. It has been given to a consumptive having hemorrhages from the lungs, at irregular intervals, with no deleterious effects.

It is contraindicated in most cases where ether is contraindicated; also in colitis, hemorrhoids, fistula in ano, or other pathological conditions of the lower bowel. Even where no pathological condition exists, if the patient complains upon its introduction it would be a contraindication.

For children under six years of age, a fifty per cent solution should be employed, allowing one ounce of the mixture for every twenty pounds of body weight. This mixture is nonirritating, and no preliminary medication is required.

For patients from six to twelve years of age, use a fifty-five to sixty-five per cent solution, without preliminary medication, keeping the patient quiet, and allowing twenty to thirty minutes for the full effect. Allow one ounce for every twenty pounds of body weight.

For patients from twelve to fifteen years of age, use the same percentages and amounts, with possibly the addition of one twelfth grain of morphin and one two-hundredths of a grain of atropin, given hypodermically as a preliminary.

From fifteen years upward, a seventy-five per cent mixture is employed, the amount and preliminary medication varying with the size and general condition of the patient and the same rule being followed as to quantity, one ounce for every twenty pounds of body weight. Thus for an adult weighing 160 pounds, eight ounces would be required.

The administration of any preliminary medication depends largely upon the opinion of the surgeon or anesthetist. For adults, Gwathmey usually employs five grains of chloreton, dissolved in two drams of ether and mixed with an equal amount of olive oil, given per rectum thirty minutes before the operation. In addition to this, one-eight to one-quarter grain of morphin, with one-hundredth grain of atropin is given hypodermically at the same time—the larger doses being given only to athletes and alcoholics.

The patient should receive the usual medication as for any operation. The colon should be thoroughly irrigated until the return is clear. A rest in bed of two hours or more before the administration of the preliminary medication is required.

The apparatus consists of a small catheter and funnel into which to pour the mixture; two small rectal catheters inserted side by side to withdraw the fluid and irrigate the colon; and a towel which is placed over the face of the patient from time to time, to prevent the dilution of the anesthetic in the air passages. When the patient is satisfactorily narcotized, the towel is withdrawn.

If a sepsis of unknown origin is associated with a positive blood culture, examine the ears. Sinus involvement from otitis media may be present with little objective evidence and no other symptoms than fever and chills.

Many cases of acute coryza and nasopharyngeal irritation are often due primarily to the streptococcus rheumaticus, and respond to the usual rheumatic therapy.

The Physician's Library

Diseases and Deformities of the Foot. By John Joseph Nutt, B. L., M. D., Surgeon-in-Chief, New York State Hospital for Crippled and Deformed Children; Surgeon, Sea Breeze Hospital; Orthopedic Surgeon, Willard Parker Hospital. 300 pages. 105 illustrations and plates. Price, $2.75 net. New York: E. B. Treat & Co., 1913.

This is the most complete work of its kind ever placed before the profession. Works on orthopedic surgery cover in general this class of diseases, but unfortunately they dismiss altogether too lightly many of the really important pedic conditions. Indeed, the physician has heretofore failed to appreciate the importance of discases of the feet and has turned over to the chiropodist many cases which he ought to be competent to handle. Some medical men feel that it is beneath their dignity to treat corns, bunions, painful heel, hyperidrosis and the like, although we suspect the real reason is that his training has not covered this field and he does not feel confident in taking those conditions.

Dr. Nutt has done the profession a real service in drawing upon his wide experience and in presenting a most useful and practical book upon a much neglected subject. He covers the medical and surgical diseases of the foot, as well as its deformities, with admirable thoroughness, and makes clear much that has been hazy. His work on the physiology of the foot is quite original, as very little can be found in our literature. Chiropodists as well as physicians will find this volume a veritable mine of information. The author is to be congratulated upon a real contribution to medical literature.

Modern Medicine. By American and Foreign Authors. Edited by Sir William Osler, Bart., M. D., F. R. S., Regius Professor of Medicine in Oxford University, England, and Thomas McCrae, M. D., Professor of Medicine in the Jefferson Medical College, Philadelphia. In five octavo volumes of about 1,000 pages each, illustrated. Volume I. Price per volume, cloth, $5.00 net; half morocco, $7.00 net. Philadelphia and New York: Lea & Febiger, 1913.

It is scarcely possible, in the limits of the ordinary book review, to adequately treat a volume of this nature. The series is widely known on account of a large sale of its first edition, and the revised edition promises even better things than offered by the first. If the initial volume is any criterion, the series will be the premier system of medicine. Vol. I is divided into three parts, treating respectively bacterial diseases, diseases of doubtful or unknown etiology and non-bacterial fungus infections. There are 33 chapters by 31 authors, each of whom is a leader in his chosen field.

The wealth of valuable material in the first edition is retained in the rewriting of the book and there are many additions on subjects of especial interest. By systematic condensation the series will appear in five volumes instead of seven. The first volume, while thoroughly revised, does not contain any striking new contributions, although each subject has been brought strictly up to date. Before the series has been completed we are promised timely articles on such subjects as pellagra, trypanosomiasis, electrical diagnosis in cardiac diseases and other topics of absorbing interest.

Both the editorial and publishing end of this work has been attended to with scrupulous care and the system will be one which every practitioner will do well to employ for purposes of daily consultation.

(*Continued on p.* 20.)

(*Contined from p. 32.*)

An Introduction to the Study of Infection and Immunity. Including Serum Therapy, Vaccine Therapy, Chemotherapy and Serum Diagnosis. By Charles E. Simon, M. D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians and Surgeons, Baltimore. New (2) Edition, thoroughly revised. Cloth. 325 pages. Illustrated. Price, $3.25 net. Philadelphia and New York: Lea & Febiger, 1913.

It was hardly a year ago that we reviewed the first edition of this book. Now a second and much better volume is at hand. All the good features have been retained and several new sections have been added. Naturally the one of most interest is Abderhalden's serum diagnosis of pregnancy. Others include chemotherapy in bacterial infections and malignant disease and auto and normal serum therapy. Simon devotes much space to salvarsan therapy in syphilis, and he believes it to be even more effective in combating other infections due to protozoan parasites. He especially notes malaria, relapsing fever, frambesia, bilharziasis, yaws and Vincent's angina.

The Practice of Medicine. By James Tyson, M. D., Emeritus Professor of Medicine, and M. Howard Fussell, M. D., Professor of Applied Therapeutics in the University of Pennsylvania. 6th edition. Cloth. 1211 pages and 185 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

The new edition of this time-tried work leads one to give vent to that old book reviewing bromide that its great popularity is attested by this revised and practically rewritten edition. As ancient as the statement undoubtedly is, there is much truth in it in this instance. For year's Tyson's Practice has been a standard. Now it possesses added value, as the co-author, Fussell, brings to the book great practical therapeutical knowledge. The entire range of diagnosis is thoroughly covered and especial emphasis is laid upon treatment. Many new topics are discussed, a few of which are pituitary diseases, bacteriuria, thymus diseases, hypo- and hyper-thyroidism, and pellagra. The volume will long stand as a monument to accurate, painstaking clinical observations.

X-Ray Technic. By Capt. Arthur C. Christie, Medical Corps, U. S. Army. Cloth. 105 pages. Price, $2.00 net. Philadelphia and London: J. B. Lippincott Company, 1913.

In preparing this excellent manual for his fellow medical officers, Capt. Christie has done a real service for his confreres in civil life, for he has produced a most useful and helpful book. It is not, of course, as comprehensive as the larger works on radiology, but is admirably adapted to the needs of the physician, who must depend upon himself for his radiological work. The book contains a description of the various kinds of apparatus, goes into the science of radiography and then takes up its applicability in various parts of the body. The little work is replete with necessary essentials.

Meningococus Meningitis. By Henry Heiman, M. D., Professor of, and Samuel Feldstein, M. D., Lecturer on Pediatrics in the New York Polyclinic Medical School. Cloth. 315 pages. Illustrated. Price, $2.50 net. Philadelphia and London: J. B. Lippincott Company, 1913.

The basic work on which this monograph is founded was done at Mt. Sinai Hospital, and is the result of observations of a large number of cases. It demonstrates that Flexner's serum, while the most potent method of treating the disease, has not yet solved the problem, especially in young infants. The mortality is very high and the effects on the nervous system of those who survive are severe. The serum treatment showed a mortality of from 13 per cent. in 38 cases (Koplik and Sladen) to 30.9 per cent. in 1,294 cases (Flexner, collective). The highest death rate is in the first two years of life. The study is exhaustive and presents many interesting facts.

The Practitioner's Visiting List for 1914. An invaluable pocket-sized book containing memoranda and data important for every physician, and ruled blanks for recording every detail of practice. The Weekly, Monthly and 30-Patient Perpetual contain 32 pages of data and 160 pages of classified blanks. The 60-Patient Perpetual consists of 256 pages of blanks alone. Each in one wallet-shaped book, bound in flexible leather, with flap and pocket, pencil with rubber, and calendar for two years. Price by mail, postpaid, to any address, $1.25. Thumb-letter index, 25 cents extra. Philadelphia and New York: Lea & Febiger, 1914.

This is indispensable to the physician, and is fully up to his necessities.

Pathological Inebriety. By J. W. Astley Cooper, Medical Superintendent of Ghyllwood Sanatorium. Cloth. 150 pages. Price, $1.50 net. New York: Paul B. Hoeber, 1913.

The author rightly believes that it is quite useless to imprison the inebriate in the hope of curing him, unless the man's pathological condition is appreciated and unless the patient's co-operation is secured. He is a firm believer in psychotherapy as a material aid to drugs in treating inebriety. This little book is one of the best presentations of the subject we have seen and the lines of treatment laid down are sane, sensible, logical and, we have no doubt, successful. One can also fully agree with Mr. Cooper's ideas on preventive treatment.

Indigestion, Constipation and Liver Disorder. By G. S. Bigg, M. R. C. S., Eng. Cloth. 170 pages. Price, $1.50 net. New York: Paul B. Hoeber, 1913.

As elementary as these topics may appear, Mr. Bigg gives a great deal of useful information regarding these common ailments, especially as to the therapeutic and dietetic treatment of the conditions. He treats the subject in an enlightening manner and suggests many ideas for treatment which are not mentioned in the larger text-books on practice. A long service in India as a medical officer of the British army has given him an excellent opportunity to observe diseases of the alimentary tract.

BOOKS RECEIVED.

All books received will be acknowledged in this column, and those which warrant further notice will be given a more extended review in a later issue.

Principles of Surgery. By W. A. Bryan, A. M., M. D., Professor of Surgery and Clinical Surgery at Vanderbilt University. Cloth. 677 pages with 224 original illustrations. Price $4.00 net. Published in 1913 by W. B. Saunders Company, Philadelphia and London.

A Text-Book of Physiology. By William H. Howell, Ph. D., M. D., Professor of Physiology in Johns Hopkins University. Fifth Edition. Thoroughly Revised. Cloth. 1020 pages, fully illustrated. Price $4.00 net; half morocco, $5.50 net. Published in 1913 by W. B. Saunders Company, Philadelphia and London.

Manual of Otology. By Gorham Bacon, A. B., M. D., Professor in Columbia University, New York. Cloth. 536 pages. Illustrated. Published in 1913 by Lea & Febiger, New York and Philadelphia.

Year Book of The Medical Association of The Greater City of New York. By P. Brynberg Porter, A. M., M. D., Editor. Cloth. 176 pages. Published in 1913 by the Association.

Pathology. General and Special. A Manual for Students and Practitioners. By John Stenhouse, M. A., B. Sc. (Edin.), M. B. (Tor.), formerly of University Toronto, Toronto, Canada. Cloth. 278 pages. Published in 1913 by Lea & Febiger, Philadelphia and New York.

The Doctor in Court. By Edwin Valentine Mitchell, LL. B., of the Massachusetts Bar. Cloth. 152 pages. Price $1.00 net. Published in 1913 by New York Rebman Company, New York.

Radium and Cancer. By Louis Wickham, M. V. O., St. Louis, and Paul Degrais, St. Louis. Cloth. 111 pages. Illustrated. Price $1.25 net. Published in 1913 by Paul B. Hoeber, New York.

Diagnosis of Bacteria and Blood-Parasites. By E. P. Minett, M. D., D. P. H., D. T. M. and H., M. R. C. S., L. R. C. P. British Guiana. Cloth. 80 pages. Price $1.00 net. Published in 1913 by Paul B. Hober, New York.

The White Linen Nurse. By Eleanor Hallowell Abbott. Cloth. 276 pages. Illustrated. Price $1.00 net. Published in 1913 by The Century Company, New York.

Causes and Cures of Crime. By Thomas Speed Mosby, member of The American Bar. Cloth. 354 pages. Illustrated. Price $2.00 net. Published in 1913 by C. V. Mosby Company, St. Louis.

The Nervous and Chemical Regulators of Metabolism. By D. Noel Paton, M. D., B. Sc., Professor of Physiology in the University of Glasgow. Cloth. 217 pages. Price $2.00 net. Published in 1913 by MacMillan Company, London and New York.

The Strange Case of Dr. Bruno. B. F. E. Daniel. Cloth. 235 pages. Price $1.50. Published by Von Boeckmann-Jones Company, Austin, Texas.

Stories of Doctors, for Doctors By a Doctor. By Dr. W. T. Bertrand. Cloth. 163 pages. Published in 1913 by The Roxburgh Publishing Company, Inc., Boston.

Minor and Operative Surgery Including Bandaging. .By Henry R. Wharton, M. D., Surgeon to The Presbyterian Hospital. Cloth. 700 pages. Illustrated. Price $3.00 net. Published in 1913 by Lea & Febiger, Philadelphia and New York.

Bulletin of The State Board of Health of Kentucky. Cloth. 609 pages. Published by the State Board of Health of Kentucky in 1912.

Progressive Medicine. Edited by Hobart Amory Hare, M. D., of the Jefferson Medical College, Philadelphia, assisted by Leighton F. Appleman, M. D., of the Jefferson Medical College, Philadelphia. Paper. 401 pages. Published in 1913 by Lea & Febiger, Philadelphia and New York.

Tumors of Abdominal Viscera. By Prof. Rudolph Schmidt, Professor of Medicine in the University of Innsbruck. Authorized English Version by Joseph Burke, Sc. D., M. D., Buffalo Hospital. Cloth. 356 pages. Price $4.00 net. Published in 1913 by Rebman Company, New York.

The History of Medicine, with Medical Chronology, Bibliographia Data, and Test Questions. By Fielding H. Garrison, M. D., Principal Assistant Librarian Surgeon General's Office, Washington, D. C.; Editor of the "Index Medicus." Cloth. 677 pages, many portraits. Price $6.00 net; half morocco, $7.50 net. Published in 1913 by W. B. Saunders Company, Philadelphia and London.

Dorland's American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M. D., editor "American Illustrated Medical Dictionary." English Edition Revised and Enlarged. 32 mo. of 677 pages. Flexible leather, gold edges. Price $1.00 net; thumb index, $1.25 net. Published in 1913 by W. B. Saunders Company, Philadelphia and London.

Digest of Comments on The Pharmacopoeia of the United States of America, and on The National Formulary, for the Calendar Year. By Murray Galt Motter and Martin I. Wilbert. Hygienic Laboratory, Bulletin Number 87. Government Printing Office, Washington. 1913.

The People's Health. By Walter Moore Coleman. Cloth. 307 pages. Illustrated. Price $0.70 net. Published in 1913 by The MacMillan Company of New York.

Pyorrhea Alveolaris. By Friedrich Hecker, B. Sc., D. D. S., A. M., M. D., Member of the Academy of Science of St. Louis, Mo. Cloth. 157 pages. Illustrated Price $2.00 net.

Medical Research and Education. A series of volumes for the promotion of scientific research and educational progress. Edited by J. McKeen Cattell. Cloth. 536 pages. Published in 1913 by the Science Press, New York and Garrison, N. Y.

A Text-Book of the Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D., Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Eleventh Edition Thoroughly Revised. Cloth. 1335 pages. fully illustrated. Price $5.50 net; half morocco, $7.00 net, Published in 1913 by W. B. Saunders Company, Philadelphia and London.

THERAPEUTIC MEMORANDA.

Intravenous Melubrin Therapeutics.—The clinical results obtained so far in the different hospitals and clinics with Melubrin show that this new antipyrin derivative has finally established its therapeutic value, especially in the treatment of rheumatic affections, writes Dr. Benno Hahn (*Muench. med. Woch.*, No. 40, 1913).

In the first place, acute articular rheumatism is distinctly influenced by Melubrin, a point upon which all investigators agree. Fever, swelling and pain of the joints quickly disappear. According to the majority of the authors, a dose of from 120 to 180 grains a day during the acute state and from 45 to 60 grains daily for another week after the symptoms have disappeared and to prevent relapse seem to give the best results. Less favorable reports on the effect of Melubrin in subacute and chronic articular rheumatism are made, although pain is relieved by relatively small doses (8 to 15 grains) three times daily and the temperature declines by lysis.

Melubrin has a favorable action on muscular rheumatism and erythemia which is not affected by the salicylates. While in general no by-effects were noted as compared to those from the use of salicylic acid and its derivatives, yet a few authors observed some unpleasant action on the gastro-intestinal tract, such as sensation

of pressure, gastralgia, and very occasional vomiting. These induced us to experiment with the intravenous administration of Melubrin. Furthermore, we desired to directly reach the cause. Soon after Melubrin is dissolved in water a yellow discoloration takes place, which increases after heating and exposure to light. This can be minimized by excluding the oxygen and storing in a dark place.

In our experiments on animals we found no increase in toxicity from the discolorized solution. Rabbits stood 45 grains per kilogram of a 50% solution given intravenously without any reaction; with 60 grains per kilogram they showed slight signs of weakness which can hardly be called a collapse. After an injection of 75 grains per kilogram they died in an hour in convulsions. Sterile solutions and those which had been exposed to sunlight and air for weeks, and which were discolored a dark yellow, were tolerated as well as freshly prepared melubrin solutions. Chemically, it was not possible to detect changes in solutions which had been exposed to the sun for weeks.

After these investigations and after experiments on myself, we applied melubrin intravenously in 50% solution in about 40 cases of acute, subacute and chronic articular rheumatism.

We did not see any effects which would have deterred us from the further intravenous administration except in one case of an idiosyncrasy against melubrin, in which the patient had reacted with vomiting and diarrhea after an oral application of 15 grains, and after an intravenous injection of 8 grains had a similar experience. Neither heart, digestive tract nor kidneys were affected in the slightest degree, even when 60 grains were injected intravenously on myself. In one case of chronic articular rheumatism complicated by subacute nephritis, we observed a steady decrease in the albumen secretion with a little salt free diet and daily intravenous injection of 113 grains Melubrin.

The results were very good. In addition to the advantage of excluding the digestive tract entirely in sensitive patients, we obtained good results in several cases of acute and especially of subacute and chronic articular rheumatism which at least equalled the results of oral or rectal administration and they surpassed them in many. I recall one case of acute articular rheumatism where the patient was able to move the limbs within two hours after the injection of 30 grains of a 50% solution.

Another case of subacute articular rheumatism showed a decrease of the swelling after oral injection, and made rapid improvement after an intravenous injection of the same dose. In other cases, we observed, especially in subacute and chronic articular rheumatism, distinct influence on the local process. We also noted some failures. For trial purposes we injected first 1 Cc. of the 50% sterile solution and increased the dose to 5-6 Cc. (that is, 113 to 135 grains) three times daily.

Summary.—The intravenous administration of Melubrin in sterilized 50% solution may be recommended for patients with a sensitive gastro-intestinal tract and in cases which are difficult to affect with oral application. An intense and direct influence is exerted on the cause of the disease with doses of from 57 to 45 grains daily.

Medical Preparatory Course for Long Island.

Beginning with the session of 1914-15, Long Island College Hospital will require for admission to the Freshman Class one year of college instruction, in addition to the four-year high school course or its full equivalent, heretofore required. To enable prospective medical students to prepare themselves for this advance in entrance requirements, the faculty has decided to establish a medical preparatory course devoted to the subjects of physics, chemistry and biology (both didactic and laboratory work), elementary physiology and German or French.

For the present year, in order to economize the time of students not yet fully prepared, and those who will graduate from the high schools in February, a spring and summer course will be given, beginning February 3, 1914, and continuing thirty-two weeks. Properly qualified students who complete this course will be prepared to enter the freshman class at the opening of the session in the fall of 1914.

Admission to this medical preparatory course will be upon presentation of any of the following credentials:

(1) A diploma of graduation from a four-year high school course recognized by the Regents of the State of New York.

(2) A certificate of the College Entrance Examination Board covering 15 units of secondary school subjects.

(3) A certificate of admission to the Freshman Class of a recognized college.

(4) A certificate issued by the New York State Education Department, stating that the student has earned 72 counts; this certificate to be acceptable must be based on an actual attendance of four years in a reputable secondary school.

The total fees will be $155.

Long Island College Hospital, with its splendid plant and excellent teaching staff, is keeping fully abreast of the times.

Reputable Manufacturing Pharmacists Do Not Furnish Emmenagogues for Immoral Purposes.

Recently one of the leading manufacturing pharmaceutical houses received a letter upon the letterhead of a retail druggist, but signed by another name followed by the word "druggist." The person signing the letter may have been a clerk or successor of the druggist. The letter was as follows:

"There is practically no sale for your Emmenagogue Improved Pills, as few ladies know anything about them, and we can give no advice, as we know nothing about them ourselves as to dose, etc. Please let us know by return mail and tell us how to use, dose, etc."

Reply was made to the pharmacist whose name was on the letterhead, and was as follows:

"We have our doubts about Mr. ———— being a druggist, for we cannot imagine any druggist not knowing that it is not only immoral, but criminal, to sell an emmenagogue except upon a physician's prescription. We believe that every druggist who sells an emmenagogue direct to the consumer is put upon his notice that it will be used for an immoral and criminal purpose. Emmenagogues on our list are intended exclusively for the prescription trade and we never knowingly sell them for popular use or to be recommended and resold as remedies for female complaints, etc."

Nitrous Oxid Anesthesia.

H. G. Sloan, Cleveland, points out the advantages of nitrous oxid anesthesia over other forms. It produces anesthesia by its interference with the use of oxygen by the brain cells and in no other way, while ether acts by dissolving the lipoids of the brain and thus puts to sleep the defending phagocytes. Lung complications with nitrous oxid are not more frequent than without an anesthesia and he has never seen a fatal case. It has no active action in producing nephritis and it is the anesthetic of choice for diabetics. The dangers and difficulties of its administration are technical and controllable as opposed to those of ether, which are chemical and uncontrollable. In the technical control of nitrous oxid the induction of anesthesia should be so gradual and careful that there is no cyanosis or muscular twitching on the way to unconsciousness. This is not so deep as that for ether, and under certain circumstances ether may be needed to supplement it, as in topers and in highly nervous cases and in certain abdominal operations.

Muscle tone is not so completely abolished as the patient is nearer consciousness and some patients result subconsciously. To overcome this factor, preliminary hypodermic injections of morphia and scoplamin can be used. This dulls the perception and assists the mental condition of the patient. Muscle trauma is another factor in muscular rigidity and it is disposed of by blocking the field with a 1:400 novocain solution. Only from one-half to two-thirds of the usual amount of anesthetic is required when the operation is done under complete and anoci-association. There is less shock under nitrous oxid than under any other anesthetic. "Technically this form of anesthesia is more difficult and exacting for the surgeon, yet I feel that we are amply repaid in sacrificing our convenience for the best interest of the patient because, first, our patients have returned to their work in progressively better condition; secondly, our mortality has progressively decreased so that in the last thousand cases in the surgical service at Lakeside Hospital in which anesthesia was given by the anoci method, there was a total mortality of only 0.8 per cent. The comfort of the patient at large has become such a marked feature that the public with us is coming to demand this dual form of anesthetic."—(*J. A. M. A.*, Sept. 13.)

Blood-Count Technic.

Allen Eustis, New Orleans, describes the method of making blood-counts which he has found for years to be rapid and exact. "After the usual shaking of the pipet and expulsion of a few drops of the suspension, a good-sized drop is placed on the counting-chamber, no particular attention being paid to its size. The cover-glass, which has been previously cleaned, is then rapidly grasped between the thumb and index-finger of the right hand, while the slide is steadied on the table with the left hand. While firm pressure is exerted on the cover-glass, it is rapidly slid across the counting-chamber through the drop of suspension on it. The cover-glass will cut through the drop at exactly 0.1 cm., the excess from the drop will rise on top of the cover-glass and jump across the moat, and Newton's rings will be obtained in each instance. The drop on top of the edge of the cover-glass is wiped or soaked up with the point of a towel or blotting-paper and the preparation is completed." He insists on the precautions of using clean cover-glasses, having the moat perfectly dry, and rapid and horizontal moving of the cover-glass.—(*J. A. M. A.*, Nov. 29.)

JANUARY CLINICS, DEPARTMENT OF PUBLIC CHARITIES.

MONDAYS.

City Hospital—		
Surgery	Dr. Dawbarn	2:00 P.M.
Dermatology and Syphilis	Dr. Gottheil	3:00 P.M.
Cumberland Street Hospital—		
Surgery	Dr. Ritch	2:30 P.M.
Laryngology and Rhinology	Dr. Stewart	4:00 P.M.
Surgery, Oral	Dr. Shea	4:30 P.M.
Kings County Hospital—		
Laryngology	Dr. Arrowsmith	2:00 P.M.

TUESDAYS.

City Hospital—		
Ophthalmology	Dr. Gilfillan	2:00 P.M.
Gynecology	Dr. Stearns	2:30 P.M.
Neurological Hospital—		
Neurology	Dr. Byrne	9:00 A.M.
Cumberland Street Hospital—		
Gynecology	Dr. Burnham	1:00 P.M.
Ophthalmology and Otology	Dr. Warner	3:00 P.M.
Kings County Hospital—		
Gynecology	Dr. McNaughton	9:00 A.M.
Genitourinary Surgery	Dr. Morton	2:00 P.M.
Coney Island Hospital—		
Surgery	Drs. Fiske and Bogart	10:30 A.M.
Surgery	Drs. Murphy and Lack	10:30 A.M.
Medicine	Drs. Hall and Nash	3:30 P.M.
Medicine	Drs. Hegeman and Byington	3:30 P.M.

WEDNESDAYS.

City Hospital—		
Obstetrics	Dr. Shears	2:00 P.M.
Surgery	Dr. Dawbarn	2:00 P.M.
Neurological Hospital—		
Neurology	Dr. Maloney	10:00 A.M.
Cumberland Street Hospital—		
Surgery	Dr. Pallister	2:30 P.M.
Kings County Hospital—		
Orthopedics	Dr. Truslow	10:00 A.M.
Dermatology	Dr. Winfield	1:00 P.M.
Gastroenterology	Dr. Lincoln	2:00 P.M.
Orthopedics	Dr. Napier	4:00 P.M.
Coney Island Hospital—		
Pediatrics	Drs. Beck and McQuillan	3:30 P.M.
Pediatrics	Drs. Pendleton and Van Wart	3:30 P.M.

THURSDAYS.

City Hospital—		
Medicine	Dr. Evans	9:00 A.M.
Neurology	Dr. Jeliffe	3:00 P.M.
Metropolitan Hospital—		
8th, 15th—Dermatology	Dr. Dearborn	2:30 P.M.
8th, 15th, 22d—Genitourinary Surgery	Dr. Carleton	2:30 P.M.
8th, 22d—Laryngology	Dr. Foster	2:30 P.M.
22d—Medicine	Drs. Laidlaw and Moore	2:30 P.M.
22d—Neurology	Dr. Howard	2:30 P.M.
22d—Obstetrics	Dr. Thomas	2:30 P.M.
15th—Ophthalmology and Otology	Dr. Boyle	2:30 P.M.
8th, 15th, 22d—Surgery	Drs. Ostrom and Harrington	2:30 P.M.
Cumberland Street Hospital—		
Surgery	Dr. Ritch	2:30 P.M.
Laryngology and Rhinology	Dr. Stewart	4:00 P.M.
Kings County Hospital—		
Obstetrics	Dr. Judd	10:00 A.M.
Coney Island Hospital—		
Gynecology	Drs. MacEvitt and Mills	1:30 P.M.
Gynecology	Drs. Mayne and Rankin	1:30 P.M.
Rhinology and Laryngology	Dr. Tucker	1:30 P.M.
Surgery	Drs. Fiske and Bogart	3:00 P.M.
Surgery	Drs. Murphy and Lack	3:00 P.M.

(*Continued on p. 28.*)

(*Continued from p. 26.*)

FRIDAYS.

City Hospital—		
Surgery	Dr. Dawbarn	2:00 P.M.
Laryngology and Otology	Dr. Dougherty	2:00 P.M.
Dermatology and Syphilis	Dr. Gottheil	3:00 P.M.
Neurological Hospital—		
Neurology	Dr. Abrahamson	9:00 A.M.
Cumberland Street Hospital—		
Gynecology	Dr. Burnham	1:00 P.M.
Surgery	Dr. Pallister	2:30 P.M.
Ophthalmology and Otology	Dr. Warner	3:00 P.M.
Surgery, Oral	Dr. Shea	4:30 P.M.

SATURDAYS.

City Hospital—		
Genitourinary Surgery	Dr. Fuller	1:00 P.M.
Pathology	Dr. Larkin	2:00 P.M.
Neurological Hospital—		
Neurology	Dr. Walsh	2:00 P.M.
Kings County Hospital—		
Pediatrics	Dr. Parrish	3:30 P.M.

Anent an Old Firm.

Reed & Carnick, one of the oldest and best pharmaceutical houses in the country, has sent to medical editors a signature blotter for especial use after signing checks. The editors will appreciate the implied compliment, but in these days of income taxes, non-paying patients, dispensaries, self-appointed advertising censors, political, medical and religious reformers (each with his little axe to grind), and other pestiferous thnigs, the blotter is likely to be more of an ornament than an implement of actual use.

It is a pleasure to note that Reed & Carnick, after more than half a century of honorable business life, goes calmly on, despite would-be obstacles, making new friends and retaining old ones. Its products are standard result givers and it is one of the high-grade firms owned by active medical men who keep abreast of the demands of the therapeutic world.

PREPARING VACCINE.

(An Advertisement.)

The preparation of a satisfactory smallpox vaccine begins with the choice of the vaccine animal.

Here at the National Vaccine and Antitoxin Institute this choice is made with the greatest care. We avoid stockyard animals. It is from this source that most of the vaccine propagators' difficulties in the past have come. The rich dairying regions of Virginia and Maryland are our sources of supply. Animals coming from tested, well-tended herds are given the preference.

In our system every calf is suspected to be diseased until it is proven otherwise. Every calf when received is placed in quarantine. For seven days all animals are kept under surveillance of our veterinarian. Each morning and each evening the temperature is taken and recorded. Animals which show any departure from the normal temperature, or which show any abnormality upon searching physical examinations are discarded.

Accepted animals are prepared for vaccination, much as the modern surgeon prepares his patient for operation. By the vigorous use of green soap and antiseptics, surgical asepsis is closely approached. The inoculation of the lymph takes place in an operating room, which throughout is finished and equipped as are the operating rooms of the modern hospital. Inoculation is carried on with sterilized instruments. The operators are clothed in clean, white robes.

From the operating room the animals are removed to the incubation room, where they are placed in elevated stanchions. The temperature in this room is kept uniform. Much of the light excluded. Animals are given continuous personal attention to keep the surroundings absolutely clean.

Only heifer calves from six to twelve weeks old are employed. The lymph yield is much smaller than from larger animals, but the danger of contaminating the lymph is much less when the animal can be fed on pasteurized milk than when hay and grain are fed.

In six days the vesicles have developed. The animal is slaughtered and the carcass taken to the operating room, where the lymph is removed under the same aseptic precautions as were employed in the inoculation. Every vesicle is removed separately. Those vesicles which show undue inflammation are not touched.

After obtaining the lymph animals are submitted to a searching post-mortem examination under the supervision of our veterinarian. Portions of the carcasses are turned into bouillon which in turn becomes culture media for our antitoxin laboratory.

Vaccine as it comes from the animal is known as green lymph. Despite the most careful handling there will appear in this green lymph quantities of foreign bacteria. If the lymph has been carefully handled practically all of these foreign bacteria will consist of the non-pathogenic saprophytic organisms with an occasional strain of the colon bacillus.

Green lymph is taken to the laboratory and ground into sterile salt solution and glycerin. The ground lymph is placed in refrigeration and allowed to ripen. From time to time samples of the lymph are removed and tested for impurities. At the end of from six to eight weeks the action of the glycerin has largely starved out the foreign bacteria.

The lymph is then submitted to further cultural and microscopic tests to determine the non-pathogenicity of such few organisms as remain. Every possible means is used to exclude the presence of pathogenic organisms. As a final test quantities of the vaccine are injected into guinea pigs.

All these tests proving negative, the vaccine is then tested for potency on calves and rabbits. Every few months a series of tests on individuals is performed, and the results tabulated. Thus do we keep check on every step of our work.

While our laboratory originated in this country the use of glycerin in connection with vaccine, and was probably the first to apply modern aseptic methods in connection with the propagation of smallpox vaccine, this was a good many years ago. The knowledge of how to prepare an almost aseptic smallpox vaccine is no longer exclusively ours. Many precautions which had in the past been disregarded by propagators have by law now been made obligatory.

In no field, however, does the personal element enter more strongly than in the propagation of smallpox vaccine. Care—rigid, uncompromising, conscientious care—in every laboratory detail must be paramount. It is this close personal attention to detail which we have tried to make a part of the system of our laboratory. It has permitted us to produce National (the original) Glycerinized Vaccine.

We are justly proud of the hundreds and hundreds of letters of recommendation which have come from prominent health officers and busy practicing physicians everywhere. We are proud of the use of our vaccine for so many years in the United States Army and Navy. Our records show that in the past thirty odd years we have supplied the lymph for over fifty million vaccinations.

We estimate that our product is on sale in over 20,000 drug stores in the United States and Canada.

We believe that it is still the best vaccine any physician can use.

NATIONAL VACCINE AND ANTITOXIN INSTITUTE.
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Corpus luteum extract is a valuable remedy in treating patients with insufficient internal ovarian secretion during the menstrual life.

More Credit to Mulford.

Dr. W. A. Puckner, director of the chemical laboratory of the American Medical Association, investigated a number of the products furnished by twenty different pharmaceutical manufacturers and the degree of accuracy attained by each house was published in the *J. A. M. A.*, September 13, 1913.

The results are given in detail and make it possible to summarize or classify them in various ways. For example, the average strength of all the preparations made by each house may be calculated. An objection to this method, however, lies in the fact that the preparations above strength, of any one house, might exactly counterbalance the ones under strength and the house receive thereby a perfect mark.

By whatever method the results are summarized, the H. K. Mulford Company heads the list for accuracy of products.

The preparations examined, namely, hypodermic tablets morphin sulphate, tablets potassium iodid, solution of potassium arsenite, fluid extract of hydrastis and fluid extract of digitalis, should be divided in summarizing results, into two classes. The first four mentioned are amenable to exact chemical assay and it is possible, therefore, to determine within a fraction of one per cent the exact deviation from standard, or conversely, approach to perfection of these preparations.

The other preparation, however, namely, fluid extract digitalis, is one for which no definite standard of strength has been fixed. The preparation is official but no assay processes have been provided by the Pharmacopœia, so that a preparation made in strict accordance with the U. S. P. directions may vary enormously in activity. A limited number only of the houses chosen for this contest make any attempt to standardize digitalis preparations. A few, however, have adopted physiologic methods of assay in an attempt to put on the market preparations of uniform strength.

Even in the absence of a fixed and official standard of strength, it is obvious that a fluid extract of digitalis should have represented in each cubic centimeter, one gram of a good quality of drug.

Dr. R. A. Hatcher, of Cornell, who examined the digitalis samples for Dr. Puckner, and made a special study of this drug for a number of years, is the inventor of the process by which these samples were examined.

Dr. Hatcher's results with the nineteen fluid extracts examined in this contest forced him to the conclusion that *the fluid extract of the H. K. Mulford Company fully represented a digitalis drug of good quality and that the next in value only possessed* 65.8 *per cent of the strength of the Mulford preparation.*

The Mulford Fluid Extract Digitalis was therefore taken as the standard, or 100 per cent. The other 18 preparations ranged from 65.8 per cent down to a minimum of 29.25 per cent.

It cannot be claimed by those whose fluid extract digitalis was found to be weak in comparison with the H. K. Mulford Company sample that the latter is too strong, because Dr. Hatcher states that the Mulford preparation represents a good quality of drug.

To the credit of all the firms, Dr. Puckner states that there was found no evidence of willful sophistication or adulteration in any product examined. He believes that none of the houses deliberately adulterate or sophisticate their standard drugs, but that the products of many of them are made by those "who are less competent and less skilled" than the others. It is the more complimentary to the H. K. Mulford Company, therefore, that it should attain the first place, with those who are doing their best to furnish standard articles. It is an emphatic endorsement of the competence and skill shown by the H. K. Mulford Company, and products of their manufacture.

According to Holzknecht, the normal stomach is full up to the cardia independent of the amount of its contents, and the lowest portion of the fundus is at the level of the umbilicus.

The Washington Society of Nervous and Mental Diseases have inaugurated their seventh session by re-electing last year's officers as follows: President, Dr. Tom A. Williams; vice-president, Dr. W. M. Barton; secretary, Dr. W. M. Hough. The Society has a limited membership, but welcomes physicians and surgeons interested in neurology and psychiatry.

Ether Percentages.

W. M. Boothby, Boston, describes his experiments with the Connell anesthetometer and also his method of determining ether percentages obtained from a mask. He summarizes his paper as follows: I. "1. Apparatus and experimental details are given for determining the ether percentages that are obtained by passing air over liquid ether. 2. The advantage of keeping the liquid ether warm is demonstrated and the beneficial action of the procedure explained by showing the effect on the ether percentages obtained and the want of effect on the temperature of the inhaled mixture. II. 1. A new method of determining the percentages of ether vapor and the temperature of the inspired mixture as obtained from a mask is described. The method used is considered to give results comparable to the percentages and temperatures existing in actual clinical etherization. 2. Clinically it is known that large, vigorous (alcoholic) patients require a great quantity of ether poured on the mask to produce anesthesia. Physiologically, it is recognized that essentially the same tension of ether vapor in the body produces in all subjects the same depth of anesthesia. It is pointed out that the clinically difficult cases are those in which the patients are deep breathers, those whose volume of air respired averages over 20 liters instead of being below 10 liters per minute. The apparent discrepancy between clinical experience and the physiologic law, therefore, consists in the difficulty of the anesthetist in bringing such a large volume of air up to the percentage of ether required. In short, the anesthetist and not the patient is to blame for a difficult and bad etherization. 3. From a calculation of the loss of heat directly attributable to warming anesthetic vapors, it is demonstrated that such loss is negligible in comparison to that from the body surface. Consequently, it is futile to warm the anesthetic vapors."—(*J. A. M. A.*, Sept. 13.)

Alkaloids Before Anesthesia.

Isabella C. Herb, Chicago, holds that the advantages claimed for the prenaesthetic administration of alkaloidal sedatives are overbalanced by its dangers. They are indicated only for local analgesia and are contraindicated whenever the respiratory center is depressed or likely to become so. In obstructive dyspnea, due to growths pressing on the trachea; in exophthalmic goiter; in operations about the mouths or throat; in debilitated or cachetic individuals or those with continued sepsis; in those with any degree of stupor or in those susceptible to morphin, and in children and elderly persons when the anesthetic is administered by unskilled or untrained persons they are contraindicated. They interfere with the pupillary index, than which nothing else indicates so well the degree of narcosis, and their routine use should be discouraged. The evidence is against their usefulness in lessening the danger from ether or chloroform or nitrous oxid in general anesthesia, but they have a distinct usefulness before local analgesia.—(*J. A. M. A.*, Sept. 13).

Either trafacial neuralgia or a severe and intractable migraine can often be permanently cured by a rhinologist. The cause is often found in the superior or middle meatus. When the trouble is of intranasal origin the attacks of pain are likely to begin in the nasoorbital or nasofrontal region, and between attacks pressure here reveals tenderness.

Comparison Ocular.

D. J. Healy, Lexington, Ky., says that while working on certain tissues he found it of great advantage to use for comparison two microscopes side by side, one showing the changed and the other the normal tissues. On January 12, 1912, he wrote to Mr. Edward Bausch, suggesting a microscope with two objectives, so arranged that looking through the eye-piece one would see half the field of each objective. The Bausch & Lomb Company kindly worked out the idea, using, however, two microscopes and a comparison ocular, a more practical and less expensive arrangement. This he illustrates and describes. He has used it since May, 1912, and found it valuable. This use antedates by some months the comparison microscope of Dr. W. Thorner, over which it has the advantage of not requiring a specially constructed microscope and thus being less expensive, although satisfactory.—(*J. A. M. A.*, Nov. 29.)

Tonsillitis.

Clara M. Davis, Lansing, Mich., reports a case of severe tonsilitis following the use of staphylococcus spray for diphtheria. The patient was instructed to spray the nose and the throat three times a day with a pure culture in sterile normal salt solution. The tonsillitis symptoms appeared on the second day and smears showed abundant staphylococcus growth with a few diphtheria bacilli on the third day of spraying. Five days later the diphtheria bacilli had disappeard, but there were numerous staphylococci, and afew pneumococci and streptococci. The tonsilitis attack was much more severe to the patient subjectively than the diphtheria.—(*J. A. M. A.*, Aug. 9.)

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The Injured Finger.

One of the most human, artistic and appealing pictures we have seen is "The Injured Finger," published by the Surgery Publishing Company of New York. It depicts a representative type of the present day physician treating an injured finger of a street urchin, while his two pals are intently and sympathetically watching the operation.

It is much more natural, appealing and human than most of the familiar office and library pictures depicting gruesome scenes.

Papine in Pain.

The wide popularity of Papine (Battle) has logically followed as a consequence of its value as a prompt anodyne, and one that is free from most of the evil features attaching to morphine. When opiates become most clearly necessary for the relief of pain in nervous women or in children, physicians will find Papine (Battle) to be as effective as opium, and with the distinct advantage of being free from most of opium's disagreeable effects.

Foreign Body in the Uterus.

The use of foreign bodies introduced into the cervix for the purpose of preventing conception, and especially of one sold for that purpose as a sure preventive under the name of the "Jentsch self-retaining uterine tube," is noticed by Aimé Paull Heineck, Chicago. He reports a case in which such a tube had slipped into the uterine cavity and had produced incomplete abortion with profuse hemorrhage. Concerning other experiences with such tubes he says: "1. Once inserted, they are difficult to remove; in two of my patients a unilateral division of the vaginal portion of the cervix was required to effect the extraction of the instrument. 2. They do not prevent conception. 3. They not uncommonly induce abortion or miscarriage. 4. They may cause infectious phenomena productive of invalidism."—(*J. A. M. A.*, Sept 13.)